THE COST OF CHINA'S RISE: HOW A DISPLACEMENT OF THE DOLLAR'S RESERVE CURRENCY STATUS WOULD AFFECT THE UNITED STATES

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ABSTRACT

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In 2009, Chinese government officials suggested the U.S. economy's high debt level made the dollar vulnerable, and a change from the dollar to a different primary reserve currency might be needed. This thesis seeks to answer the question of whether the rising importance of the Chinese yuan will undermine the U.S. dollar's importance globally, and how a possible change could impact the U.S. economy. The paper begins with a background section explaining what reserve currencies are, and how the mechanisms behind both reserve currencies and foreign exchange work. The second chapter includes an explanation of the current role of the U.S. dollar internationally and why reserve currency status matters. The main part of the thesis explores the strengths and weaknesses of the U.S. dollar and the Chinese yuan respectively. The effects of the dollar's reserve currency status on the U.S. economy are analyzed using scholarly research and primary interviews conducted with portfolio managers in the U.S. and China. The author concludes that the dollar will likely not be threatened by the Chinese yuan within the next ten to twenty years. The yuan lags behind the dollar in many areas important for its candidacy as an international reserve currency. The areas where the dollar currently leads the yuan include financial market depth and transparency, usage in transactions worldwide, greater access to markets, reduced capital controls, and restrictions on capital inflows and outflows. In order for the yuan to gain a more international role, the Chinese government must allow the yuan to float freely against all other currencies, so that investors and governments can have full faith that the currency is trading at an accurate value without interference. A hypothetical displacement of the dollar's reserve currency status would result in mixed effects on the U.S. economy by improving the potential for exporting but raising borrowing costs.

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Chapter 1 – Introduction

The day of the dollar's demise is an eventful one for John, a senior portfolio manager at a large endowment fund headquartered in New York. He checks the charts on his array of screens before opening another article from *The Wall Street Journal*, hoping that his phone will stop ringing. A television blares in the background with the dire economic predictions of a talking head who feigns shock at the slumping markets and analysis from pundits of all kinds. After years of predictions of the dollar's downfall, several agreements have gone into place among central banks around the world that officially establish the Chinese yuan the world's primary reserve currency. The dollar's reign as the dominant international reserve currency has ended, and the new currency system is hailed by China and Europe as the dawn of "a new era of foreign exchange stability." John has his doubts, but he moves over to the Bloomberg terminal to begin work on a market update for his Board of Directors. Despite the relative lack of surprise of the announcement, the markets react poorly to the official announcement of the new reserve currency system. The Federal Reserve Chairman comes on the television in the background to speak, and John turns to watch momentarily. The Chairman acknowledges the turbulent economic conditions ahead, attempting to calm the fears of investors and everyday people. In John's opinion, his message rings a little hollow. A check of the markets at the conclusion of the speech confirms his prediction: investors were not assuaged. The best estimates of economists suggest that domestic GDP will contract by 1.5%, and unemployment will rise by almost a percent as a result (Eichengreen, 2011). John knows that the increase in volatility in the markets could also trigger panic selling. To the best of his ability, he had warned his family members and friends that the downfall of the dollar was coming, and now many people, including his loved ones, face real effects on their wallets from something they could not control. Government programs like Social Security, already bordering on insolvency, were now at risk of almost certain termination. John knew the government could no longer finance its exorbitant level of spending due to the lower demand for dollars. He also felt, however, that the situation would eventually balance out. The current situation was bad enough. He hoped that the former drawbacks of being the world's reserve currency would now become the country's benefits. Exports, for instance, could theoretically increase with the drop in the dollar's price relative to many currencies around the world. Perhaps the news was not as bad as the pundits said. He opened his email and began to type out his update.

John first considered the history of international currency regimes and how paradigm shifts had affected other world powers as a means of introduction. The British pound had been dominant on the world's stage for about 80 years, but it had been overtaken quickly by the dollar in the 1940s. The devastation of World War II and the U.S. economic engine had erased the large British advantage in total foreign exchange holdings. The amount of British pounds held by foreign governments had been nearly double that of the U.S. dollar in 1940, but the dollar had surpassed the pound by the war's end (Chinn and Frankel, 2008). Since the Bretton Woods Conference made the change official in 1944, the United States dollar had served as the world's primary reserve currency. John wiped the perspiration off his forehead and once again considered his family. For the average American citizen, the dollar's reserve currency status had been nothing more than a source of national pride or a cursory mention in an opinion piece on China's economic expansion. The debates between a tired-looking Federal Reserve chairman and an upset foreign government partisan or two pundits on CNBC arguing about which currency could soon replace the dollar did not hold much meaning to Main Street America. It seemed to average Americans that the dollar's prominent status was just a fact of life, and one that was not easily disturbed. After all, the dollar had survived the financial crisis in the late 2000s, so what other problems could possibly doom it? John thought about the simple privilege Americans had to use their currency to buy everything from groceries to the latest iPhone. Most people did not worry about the dollar's place in the world because they did not have to; instead, they just wanted to know how many dollars were coming into their households. John knew, however, that the dollar's role was more than just a means of buying goods. When a foreign country's currency begins to collapse, the dollar was usually the safe currency of choice. Dollars were also the currency of choice for multinational corporations around the world. For U.S. companies, the dollar's prominence allowed for lower costs; since transactions were generally carried out in dollars instead of a foreign currency, foreign exchange was not necessary. The demand for dollars also allowed for lower borrowing costs since the majority of debt was denominated in dollars. John considered how many of these benefits would be lost and realized that he was not sure. More research would be needed.

John thought back to when he first heard the idea that the dollar's position in the world was precarious. Some of the arguments against the dollar had appeared to him to be bluster by foreign politicians upset with the U.S., while others seemed to have some potential support. The dollar's relative strength has undergone cycles of apparent strength and weakness over the past 60 years depending on the political and economic environment. The most recent test of the dollar occurred during the recession from 2008-2010 in the United States. During that time and just after, John recalled how Chinese officials and economists began to suggest that the dollar might not be the ideal reserve currency for the world. At the time, the U.S. government was fighting off a collapse of the financial system, and the Federal Reserve responded by injecting large amounts of cash into the economy thereby lowering interest rates. The high amount of government spending during the Bush Administration thus carried over into the Obama Administration despite the fact that the U.S. owned a lower percentage of the world's GDP with the rise of China and other emerging markets. As the U.S. economy continued to suffer in 2010, Chinese officials saw a strategic opportunity to sow seeds of support for the yuan: '". . . it is perhaps a good time for the befuddled world to start considering building a de-Americanized world," wrote Liu Chang for China's official news agency Xinhua" (Conerly, 2013). The comments by Chinese officials and others piqued John's curiosity to do more research on reserve currencies. While he did not think the U.S. government had an unfair or undue advantage with the dollar's global status, he resolved to find out how the U.S. economy was actually being affected, if at all.

John recalled how wide-ranging the opinions on the dollar were only a few years prior. Some economists predicted that the loss of the dollar's reserve currency status would have serious negative economic consequences, especially given the relative partisanship in Congress. Barry Eichengreen, a professor and researcher at the University of California at Berkeley, argued that the dollar's downfall could have significant effects on the U.S. economy (Eichengreen, 2011). Despite the dollar's position on shaky ground, Eichengreen did not see a large threat to the dollar in 2011. Other experts, such as author and economist Paul Krugman, argued that concerns over the dollar's reserve currency status were overblown since the dollar continued to be the most viable option of any currency (Krugman, 2013). Krugman also did not believe that reserve currency status provided any sort of special privileges, including outsized deficit spending or lower borrowing costs. With all of this information in mind, John finally began to type out the body of his email. He knew that it was going to be a significant challenge to determine how the U.S. economy would be affected by the switch to the yuan, but he resolved to find out.

Thesis Overview

This thesis will address the following question: Will the increasing importance of the Chinese yuan undermine the U.S. dollar's predominance as a reserve currency? The question will be explored from the angle of both the United States and China. The main areas of exploration will include determining the likelihood of the yuan to become the primary global reserve currency as well as a potential timeline for its ascent. Additionally, the economic and political impacts on both China and the U.S. from a potential displacement of the dollar's reserve currency status will be analyzed. The primary methods of research utilized were journals and news articles on the subject as well as two interviews conducted with a portfolio manager in the U.S. and one in China. Relevant data, charts, and tables are included throughout the paper to provide greater clarity on the subject and illustrate the differences between the U.S. and China with regard to their economies and their currencies themselves.

In Chapter 2, reserve currencies will be introduced and defined, and the basics of foreign exchange will be explained. The characteristics of a reserve currency and the dollar's current role as the primary international reserve currency will be explained. A short history of the U.S. dollar in foreign exchange will also be discussed. Chapter 3 will go into the specific benefits and drawbacks for the U.S. economy because the dollar is the primary reserve currency. Both the qualitative effects and the net economic impact on the U.S. economy will be included. Chapter 4 will begin with a short history of China's economic rise. The prospects for the Chinese yuan to become the primary reserve currency will be addressed as well as the political and economic reasons against it. In Chapter 5, conclusions will be drawn on the yuan's potential to become the primary reserve currency and a timeline for it to replace the dollar. The analysis will include interviews from a portfolio manager in the U.S. and in China.

Chapter 2 – Background on Reserve Currencies

Introduction

In order to properly understand the broader discussion behind the United States dollar's reserve currency status, it is necessary to first understand background details underlying the central argument. In this chapter, the concept of a reserve currency will be explained, and the current composition of global reserves will be discussed. Furthermore, the U.S. dollar's role as the primary global reserve currency will be introduced with a brief history of how it rose to prominence as well as details on the current reasons for its use.

Reserve Currencies and Foreign Exchange Reserves

According to international business professors Charles Hill and Tomas Hult, a reserve currency "is a currency that is held in significant quantities by governments and institutions as a part of their foreign exchange reserves and that is commonly used in international financial transactions" (Hill and Hult, 2015). Foreign exchange reserves are created through trade. When a business in one country sells a good or service to another country, it receives a foreign reserve currency in exchange. The foreign currency received does not enter the general circulation, but instead, it is deposited into a local bank. The foreign currency is then transferred from the local bank to the central bank where it is set aside in an account known as "International Reserves" within the central bank. Therefore, to put it more simply, reserve currencies are "foreign currencies held by central banks" (Radcliffe, 2014). The reserve currencies endorsed by the International Monetary Fund (IMF) are the U.S. dollar, euro, British pound sterling, Japanese yen, Swiss franc, Canadian dollar, and Chinese yuan. One important clarifying note: the U.S. dollar is by far the most used currency in trade and the most widely held currency by central banks around the world (IMF, 2017). Therefore, when the term "primary global reserve currency" is mentioned in this paper, it is referring to the U.S. dollar and not another reserve currency. Reserve currencies allow countries and businesses to use a small group of currencies (and typically only the U.S. dollar or the euro) to conduct business in the international sphere, allowing for lower transaction costs and faster transaction processing.

Reserve currencies have an important role in international trade by increasing efficiency. Instead of having to conduct business in many different currencies, reserve currencies allow for companies to buy and sell goods in one of the reserve currencies on nearly all occasions (Carbaugh and Hedrick, 2009). The pervasive use of a reserve currency by businesses and central banks creates a kind of feedback loop similar to what is seen in network effects.[1] The employment of the dollar by so many entities increases its value because it makes conducting transactions more efficient. If only one currency is being utilized for most transactions, the costs for everyone are reduced. This aspect of the dollar helps to cement the currency's place internationally because it increases demand as companies and central banks seek to take advantage of these network benefits (Carbaugh and Hedrick, 2009).

One characteristic of reserve currencies is that they possess stability in terms of their future value, usually measured in terms of future purchasing power. The dominant reserve currency in particular is selected by institutions because of the strength and stability of a country's economy. Both economic solidity and the relative security of a currency's value is attractive to central banks. One development since the Asian financial crisis of the late 1990s is for central banks to accumulate large amounts of reserve currencies. Theoretically, central banks can slow down or even stop a rapid drop in their domestic currency's value by selling their stockpile of reserve currencies and buying back their own currency (Carbaugh and Hedrick,

[1] Or "network externalities"

2009). By taking such action, the government and central bank can help restore confidence in the domestic currency by helping to stabilize the exchange rate.

From the perspective of a central bank, a reserve currency must possess several characteristics that make it attractive to use in transactions or to hold in reserves. One characteristic was already mentioned above – network effects, which are benefits received when many people use the same product, or in this case, a currency. When demand for the currency becomes self-generating (demand breeds more demand), its liquidity increases and its transaction cost declines. In addition to focusing just on the currency, some factors that lead to a reserve currency's rise come from its macroeconomic environment. One such factor is a country's overall trade position. Generally speaking, a reserve currency arises out of a country that has high trade output. The reason for this factor is intuitive: when a currency is used repeatedly with a frequent trading partner, a country is more likely to use it in general (Carbaugh and Hedrick, 2009). Another crucial factor is confidence in the political and economic system of the country backing the reserve currency. As will be discussed later in this chapter, currencies are volatile, and their value can fluctuate quickly in the current era of floating currencies. Whether the value is uncertain because of frequent government intervention in the currency's price, economic instability, or poor government or central bank policies, these factors negatively affect how the currency is viewed. Without faith that a currency's value will be stable, a central bank has no assurance that its reserves of such a currency will be useful, and it therefore avoids holding them (Moghadam, 2009). Finally, reserve currencies generally come from countries with well-developed financial markets with significant liquidity, access, and size. As an example, consider the financial crisis in the United States in 2009. Despite the country's economic distress, U.S. financial markets continued to remain open and liquid for foreign businesses, investors, and governments (Moghadam, 2009). Thus, faith in financial markets is also an important aspect for central banks to consider when making a decision on reserve currencies.

A Short History of Foreign Exchange

To understand the current foreign exchange system, it is important to understand how foreign exchange has changed in recent history. By the late 19th century, most of the world's largest trading nations had adopted the gold standard as their monetary system. The gold standard involves the use of gold as money. Until the early 20th century, the international monetary system was a direct gold standard, meaning that a paper currency was "pegged" to gold, in that convertibility to a certain value of gold was guaranteed. A currency peg means fixation of a currency to a measure of value, such as to a single currency, a basket of currencies, or to a physical store of value like gold. The countries that adopted the gold standard, including Great Britain, Germany, the United States, and Japan, fixed their currencies to a specified amount of gold. The United States, for instance, fixed the price of gold at $20.67 per ounce. While a relatively simple monetary system, the gold standard's appeal came from the ability to easily determine the value of one currency against another. For example, take the price of the British pound, which was fixed at £1 per $4.87. By dividing $20.67 by $4.87, we receive the exchange rate for converting pounds into dollars (Hill and Hult, 2015). By fixing currency exchange rates against gold, the price levels of countries globally generally moved together as a result of a process called the price-specie flow mechanism.[2] Basically, assuming a simple two-country system, a feedback loop formed each time a country generated a trade surplus. The

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[2] NASDAQ defines price-specie flow mechanism as follows: "This adjustment *mechanism under the classic gold standard allowing disturbances in the price level in one country to be wholly or partly offset by a countervailing flow of specie (gold coins) that would act to equalize prices across countries and automatically bring international payments into balance." An important outcome of price-specie flow mechanism is balance-of-trade equilibrium, which means that trade partners will remain generally debt-free after trading with each other over a significant period of time.*

reason is because more money (gold) leads to higher inflation in the country, which has the effect of raising prices in the country that previously had an advantage in exporting due to lower prices (Bordo, 2008).

By the start of World War I in 1914, the pure gold standard was abandoned by most leading economies in Europe because money had to be printed in large quantities – beyond that supported by gold reserves – to finance the war effort. The value in terms of gold of the main reserve currency at the time, the British pound sterling, became volatile, especially after a surge in demand for sterling resulted in more regulation of the currency in the form of exchange controls (Eichengreen, 2011). The resulting increase in money supply, along with the suspension of the gold standard, increased inflation in Great Britain and in other European countries affected by the war. The uncertainty in the sterling and other European currencies made their use less attractive to traders in countries around the world, and some of them began to look for an alternative. One alternative was the U.S. dollar because its value remained relatively stable as it was still pegged to gold and was being increasingly used in world trade. As a result, the shift towards the dollar as a reserve currency began by the early 1920s (Eichengreen, 2011).

Between World War I and World War II, the dollar's use began to rise, while the sterling's use peaked and then began to fall. The period also marked the end of the "gold standard" in the sense that most major countries no longer circulated gold in the form of physical coins (called "specie") and instead only used Treasury notes that were convertible to a certain amount of gold upon request (Elwell, 2011). The gold standard was abandoned in the U.S. in 1933 as a result of a series of moves by the Federal Reserve and the Roosevelt Administration that ended convertibility of Treasury notes into gold. A series of bank runs during the Great Depression had left the Fed with little liquidity and little ability to meet demands for cash. To stay on the gold standard, the U.S. government would have been required to contract its money supply when it needed to expand it to stimulate the economy (Elwell, 2011). The gold standard prevented monetary expansion because printing more money to meet the liquidity demands would have led to lower interest rates. Lower interest rates would have caused more gold to leave the country as investors would have sought higher returns in other countries with higher interest rates. This capital flight would have made it difficult or impossible to maintain the dollar against its value of gold unless the money supply was lowered. With the change implemented in 1933, the U.S. moved to a new monetary regime known as the "quasi-gold standard"[3] (Elwell, 2011).

The quasi-gold standard signified the end of a pure gold standard and marked the period from 1934-1973 (Elwell, 2011). The dollar remained defined in terms of gold, but private citizens could no longer exchange dollars for a certain amount of gold. The gold standard was therefore suspended with the exception of the use of gold in foreign exchange transactions with other central banks (Bordo, 2008). The Bretton Woods agreement in 1944 between 44 countries further modified the gold standard and reinforced the rise of the U.S. dollar. Because there was not enough gold for every country to hold an adequate amount in reserves, the U.S. dollar and British pound were chosen as reserve currencies for the new system. Great Britain, however, continued to be affected by high wartime spending and a growing trade deficit that were necessary to win World War II. These factors, combined with rumors the pound would be devalued after the war ended, resulted in many British trading partners converting their pounds to U.S. dollars. In reality, the pound was thus a mostly symbolic reserve currency under Bretton Woods (Dawnay, 2001).

[3] Some scholars refer to the quasi-gold standard as the "gold exchange standard"

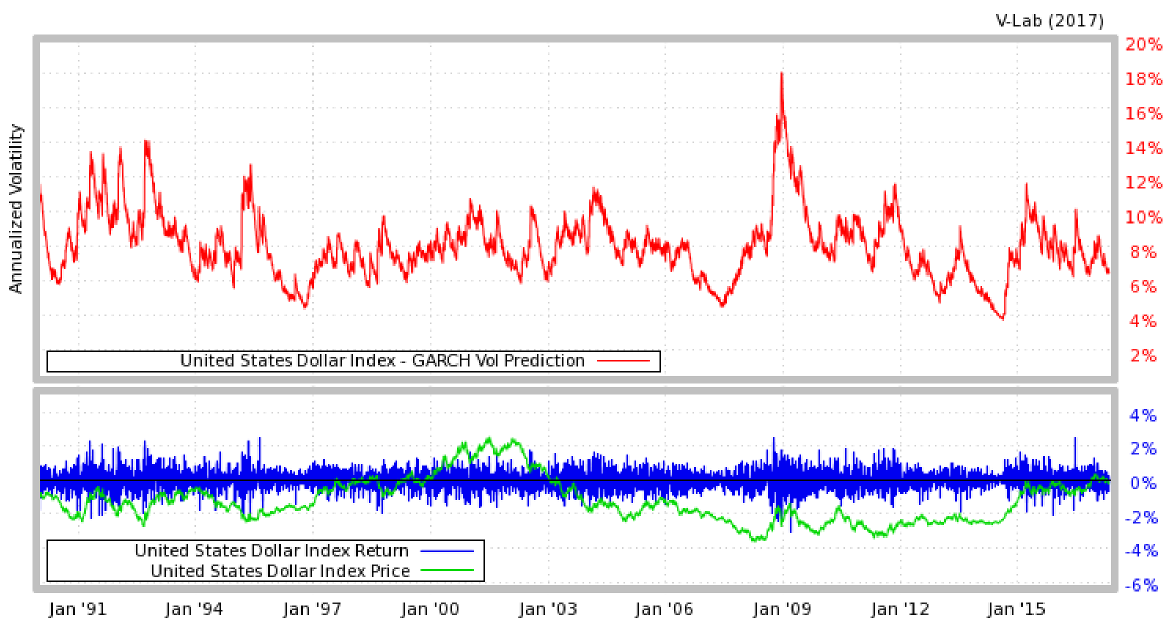
The Bretton Woods agreement, while hailed as a new and innovative system, was largely a modification of the previous gold standard. Countries fixed their currencies in terms of the U.S. dollar (and in rare cases the pound). The dollar remained fixed as before to a certain amount of gold. The U.S. dollar conversion rate to gold, the "gold par value," was initially set at a rate of $35 per ounce of gold. Other countries then tied their currencies to a certain amount of gold such that they remained within plus or minus 1% (a "band") of the par value (Hill and Hult, 2015). Countries therefore had to manage their currencies by buying and selling foreign currencies and gold to stay within the required band. If the currency's value, known as the "reference rate," moved too far above the fixed benchmark rate of 1%, the government bought its own currency in the open market using its reserves to balance supply and demand. The goal was to create an environment that would promote global economic growth while maintaining stable currency markets. The importance of Bretton Woods for the dollar was significant; its implementation meant the dollar's role as the primary international currency was essentially established by an international agreement. The U.S. held the special position as the only currency with convertibility to gold because the amount of debt issued by European countries depressed the value of their currencies, while the U.S. dollar strengthened and had the highest purchasing power due to the increase of U.S. gold reserves (Bordo, 2008). The dollar's role in the foreign exchange market was strengthened because of its liquidity and convertibility. While some currencies were not easily convertible, the dollar acted as an intermediary. When one less frequently traded currency needed to be converted into another less frequently traded currency, the dollar served as the vehicle to more easily exchange the currencies ("Report to Congress," 2009).

The Bretton Woods system was largely effective until the late 1960s when the system's central reference point, the U.S. dollar, began to weaken. Beginning in the early 1960s, the number of dollars in supply worldwide exceeded the amount of U.S. gold reserves, which began to cast doubt on the ability of the U.S. government to convert dollars into gold (Bordo, 2009). Other political and macroeconomic factors specific to the U.S. aggravated the situation. Government spending on the Vietnam War abroad led to an increase in outflow of gold from the U.S. At the same time, government spending that had begun with previous administrations further increased with President Lyndon Johnson's Great Society domestic spending initiative. Because neither of these policy decisions were financed by an increase in taxes, the increased spending began to cause higher inflation in the U.S. Foreign countries preferred to keep their currencies undervalued to improve their export positions and refused to rebalance to adjust for inflation in the U.S., which was putting downward pressure on the purchasing power of the dollar (Hill and Hult, 2015). The inflation resulted in the dollar being continuously overvalued in comparison to foreign currencies; since countries used the dollar as a reference point, their price levels needed to move in concert with the U.S. Some countries agreed not to exchange their dollars for gold, which ensured a similar inflation level to the U.S. by increasing the domestic money supply. However, a group of other countries, led by France, would not succumb to political pressure and continued to redeem their dollars for gold (Hetzel, 2013). As a result, the pressure on the dollar's gold par value continued to build. Within the next several years, the continued decrease in gold reserves due to redemptions combined with the increase in the supply of dollars forced the Nixon Administration to acknowledge that the pledge to exchange dollars at the gold par value of $35 was untenable; the convertibility of dollars to gold was ended. In the final year of Bretton Woods, the U.S. total gold reserves were depleted by nearly 15% (Minerd, 2012). A temporary international agreement called the Smithsonian Agreement devalued the dollar to $38 per troy ounce of gold but did not reinstate convertibility of dollars to gold. Pressure on the dollar once again required a devaluation a year later, which failed to stop continued downward pressure on the dollar's purchasing power (Elwell, 2011). In 1973, developed countries began to allow their currencies to float against the dollar, which officially ended the Bretton Woods system and the quasi-gold standard.

The introduction of the floating exchange rate regime was established with the Jamaica Agreement at a meeting of IMF members in 1976. The agreement made official what was already known informally – the dollar would no longer be defined in terms of gold. The predominant monetary system would instead be based on fiat, meaning that governments established currencies as legal tender without the backing of a physical store of value such as gold. Furthermore, floating exchange rates were declared acceptable, and governments could intervene to adjust their exchange rates during times of speculation as they saw fit (Hill and Hult, 2015). While some countries continued to fix their exchange rate to the dollar, the Jamaica Agreement marked a crucial turning point in the global foreign exchange environment. The new international monetary system was mixed, with nearly all developed countries choosing to allow their currencies to float, while some developing countries allowed their currencies to float, and some established one of several non-floating regimes. Perhaps the most crucial distinction of the post-Bretton Woods regime compared to the previous regimes is that there is not one distinct international monetary system in place.

One important result of a floating exchange rate regime among developed economies is a greater amount of volatility in exchange rates under the floating regime than was present under Bretton Woods (Figure 1) (Hill and Hult, 2015). Changes in inflation or in changes in the growth of money supplies between countries is one possible explanation for volatile exchange rates; however, volatility appears to be influenced most by speculation (Krugman, 2002). Speculation involves buying and selling currencies and foreign exchange instruments to make a profit. The effects of speculation-induced volatility are disputed by economists. Theoretically, exchange rate instability could affect international trade volume and the prices of goods by causing price swings and shifts in market share, but pricing-to-market, "keeping the prices of their exports stable in terms of the importing country's currency," helps a company mitigate the risks of volatility (Krugman, 2002). Thus, the relative stability of goods prices has resulted in somewhat fewer than expected negative effects related to volatility.

Figure 1: Annualized volatility of the U.S. dollar since 1990



Source: NYU Stern School of Business

In April 2016, the Bank for International Settlements (BIS) reported that average daily trading in foreign exchange markets totaled $5.1 trillion, which was down from $5.4 trillion in 2013 (BIS, 2016). Trading in exchange markets has a heavy bias towards currencies tied to floating exchange rate regimes (Rose, 2011). While comparable data was not made available by the BIS in its most recent survey, in 2010, trading in currency pairs from floating exchange rate regimes was over 95% of total trading (Rose, 2011). The trading volume of emerging market currency pairs has increased significantly over the past few years, as the Chinese yuan nearly doubled in turnover over the three year period and overtook the Mexican peso to become the eighth most traded currency. The USD-CNY currency pair specifically rose in turnover from $113 billion to $192 billion, which moved it from ninth to sixth place in terms of overall share among currency pairs (Figure 2) (BIS, 2016).

Figure 2: Foreign exchange turnover by currency pair

Currency pair	**2016**	
	Amount	**%**
USD / EUR	1,172	23.1
USD / JPY	901	17.8
USD / GBP	470	9.3
USD / AUD	262	5.2
USD / CAD	218	4.3
USD / CNY	192	3.8
USD / CHF	180	3.6
USD / MXN	90	1.8
USD / SGD	81	1.6

Source: BIS Triennial Survey

The Dollar’s Role as a Reserve Currency

The dollar, as with any currency, has three main roles outside of its roles as a reserve currency: serving as a medium of exchange, a store of value, and a unit of account. These general currency functions are not as complicated as they sound. “Medium of exchange” simply means that money must be accepted for trade for a good or service of some value. On its own, money cannot be consumed (i.e. you cannot eat money). A “store of value” refers to the ability of a currency to hold purchasing power over a period of time. Finally, a currency must serve as a "unit of account," which means that it is "a measure used to set prices and make calculations" (Krugman and Wells, 2015). As an example, consider the fact that we do not typically exchange a number of hours of farming for the opportunity to go to school. Instead, the cost of school tuition is denominated in terms of a specific dollar amount.

These three general currency roles are joined by other roles that are specific to reserve currencies. First, the dollar serves an international role as a vehicle currency. As evidenced in the discussion on Bretton Woods, reserve currencies provide an important role in conducting transactions between currencies that are less frequently traded. When a bank needs to trade these types of currencies, they are traded into the U.S. dollar or another reserve currency first instead of being converted directly. Because of the dollar's prominence, the trade is more likely to go through because of the perceived and actual liquidity of the dollar. While business is occasionally conducted in currencies other than the dollar, the dollar is dominant as a transaction currency over even major currencies such as the euro or yen. According to the triennial survey conducted by the Bank for International Settlements (BIS), the U.S. dollar was used in about 88% of transactions, which was a slight increase over the previous survey (Figure 3) (BIS, 2016).

Figure 3: Currency distribution of foreign exchange turnover

Currency	2001		2004		2007		2010		2013		**2016**	
	Share	Rank	Share	Rank	Share	Rank	Share	Rank	Share	Rank	**Share**	**Rank**
USD	89.9	1	88.0	1	85.6	1	84.9	1	87.0	1	**87.6**	**1**
EUR	37.9	2	37.4	2	37.0	2	39.0	2	33.4	2	**31.4**	**2**
JPY	23.5	3	20.8	3	17.2	3	19.0	3	23.0	3	**21.6**	**3**
GBP	13.0	4	16.5	4	14.9	4	12.9	4	11.8	4	**12.8**	**4**
AUD	4.3	7	6.0	6	6.6	6	7.6	5	8.6	5	**6.9**	**5**
CAD	4.5	6	4.2	7	4.3	7	5.3	7	4.6	7	**5.1**	**6**
CHF	6.0	5	6.0	5	6.8	5	6.3	6	5.2	6	**4.8**	**7**
CNY[3]	0.0	35	0.1	29	0.5	20	0.9	17	2.2	9	**4.0**	**8**
SEK	2.5	8	2.2	8	2.7	9	2.2	9	1.8	11	**2.2**	**9**
NZD[3]	0.6	16	1.1	13	1.9	11	1.6	10	2.0	10	**2.1**	**10**

Source: BIS Triennial Survey

The role of the dollar is also significant in settling international trade transactions, although this area is more fragmented. According to a 2016 survey by the European Commission, the U.S. dollar's role as a global financing and vehicle currency leads to a dollar preference by many firms around the world in spite of geography (Langedijk, Karagiannis, and Papanagiotou, 2016). Consider European firms as an example. Since the introduction of the euro as a common currency in Europe increased that currency's share of trade settlements, the euro's share has largely stabilized in recent years. Another piece of supporting evidence comes from a more recent set of countries – those countries that just adopted the euro as their national currency. In a few of these countries, such as Estonia, the use of the euro in international trade surged; however, in other countries, such as Slovakia and Slovenia the euro remains the predominant trade currencies without much change (Langedijk, Karagiannis, and Papanagiotou, 2016). In addition to geography, certain economic sectors may have a significant precedent which determines the dollar's use in trade transactions. For example, the dollar has been traditionally used as the primary currency for oil and gas trading, and OPEC countries have denominated oil prices in dollars since the early 1970s.

The dollar's role in the international monetary system also extends to the international debt and loan markets. In recent years, the amount of total debt securities denominated in dollars has decreased because of an increase in debt issued in domestic markets in Europe (Goldberg, 2011). The dollar's share of a more specific type of debt, international debt securities, has actually risen in recent years, with the dollar holding a more than 50% share. This percentage share is up from approximately 41% in the early 2000s (Goldberg, 2011). International debt securities are defined as "the dollar-denominated share of all securities sold outside the issuing country and in a currency different from that of the issuer's country" and are a gauge of the strength of a currency's presence in the international monetary system (Goldberg, 2011). The dollar's place among other currencies is also significant in loan markets. The dollar is the leading currency in loans between banks as well as between banks and customers. In addition, the dollar is the most frequently used currency in loans between banks in different countries, which are known as cross-border loans (Goldberg, 2011).

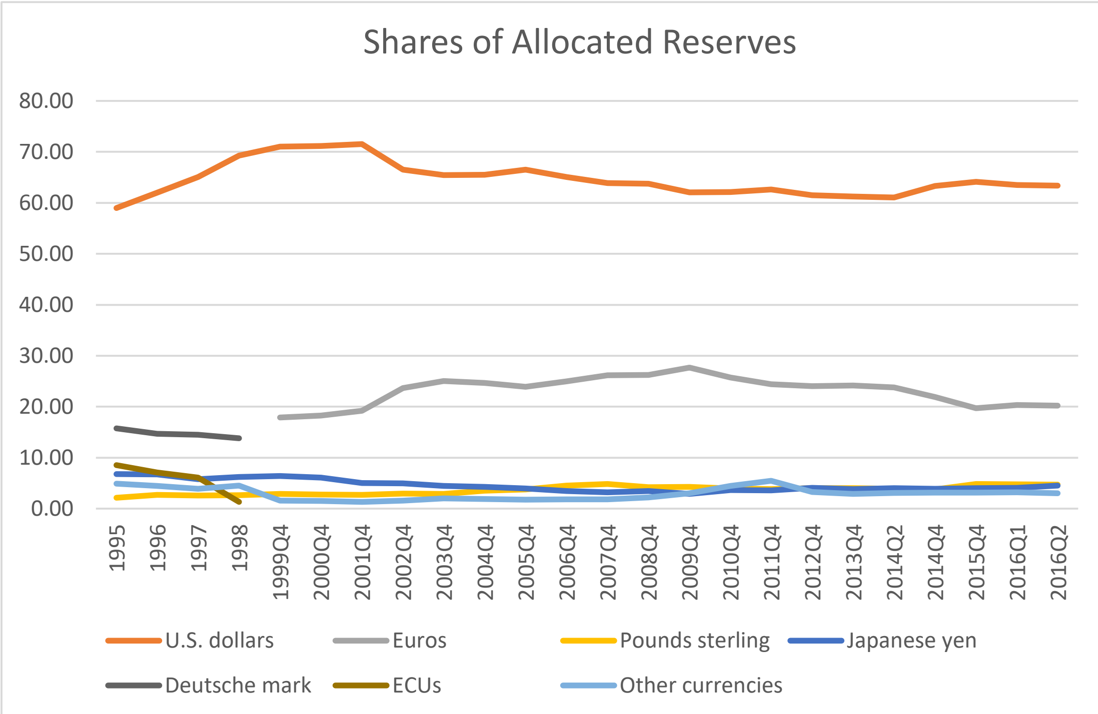
One of the most well-known uses of the dollar is in the foreign exchange systems of individual governments. Some U.S. tourists are familiar with the high regard some foreigners place on the dollar and enjoy getting to use dollars in foreign souvenir markets. Some countries issue a domestic currency but also permit the dollar's use because of its domestic viability. In other cases, a country may simply use the dollar in place of its own currency. The decision by a foreign government to use the dollar as its primary currency is known colloquially as "dollarization" and is used by nine countries around the world, including Ecuador, El Salvador, and Zimbabwe, to name a few (Schnurer, 2014). In many cases, the dollar is perceived as safer and more stable than the local currency, and the switch is often made when the citizens of a country lose faith in the local currency and begin to hold dollars. Although this kind of change would appear to reduce the sovereignty of a country, the resulting economic stability accompanying dollarization is considered a welcome exchange (Schnurer, 2014). The dollar also serves as a reference currency in certain foreign exchange rate arrangements undertaken by foreign governments. Some governments choose to peg their local currency's exchange rate against a certain reference currency, which is split between the U.S. dollar and the euro (Schnurer, 2014).[4] The result of a pegged exchange rate system is the movement in concert of the

[4] As of 2016, 18 countries are pegged to the euro; 16 countries are pegged to the U.S. dollar; 2 countries are pegged to the Indian rupee; and 3 countries are pegged to the South African rand.

local currency with any movements by the U.S. dollar or another anchor currency. For small countries, a currency peg system imposes a sense of monetary discipline since overspending could lead to higher inflation than is being experienced in the U.S., which would then force the foreign government to alter its peg and devalue the local currency (Hill and Hult, 2015).

In addition to its use in transactions related to foreign exchange, the dollar also has the most prominent role in the foreign exchange reserves of the governments of individual countries. Foreign exchange reserves are used by the central banks of governments to back their current liabilities as well as a means to influence monetary policy. In the past decade, total allocated reserves have grown sharply, from $3.32 trillion at the end of 2006 to $6.82 trillion at the end of 2015 (IMF, 2016). Growth of foreign exchange reserves slowed during the Great Recession and during the more recent economic crisis in many emerging market countries during the last two years. Since reserves are often used during crises to stabilize exchange rates, this short-term trend is unsurprising (Goldberg, 2011). However, among central banks in both developing and developed countries, the dollar's share in reserve currency asset portfolios has not been diluted by continued growth in total reserves. Instead, the dollar's share of allocated reserves has largely stayed the same since the recession (Figure 4). Recently, there has been a trend for some governments to diversify their holdings with a greater amount of developing country currencies, but this trend has been largely offset by the recent economic crises in developing countries.

Figure 4: Shares of IMF allocated reserves by currency



Source: *IMF COFER Data*

<u>Chapter Summary</u>

This introductory chapter discussed important background information, including defining a reserve currency as a "currency that is held in significant quantities by governments and institutions as a part of their foreign exchange reserves and that is commonly used in international financial transactions" (Hill and Hult, 2015). International reserve currencies include the U.S. dollar, euro, British pound sterling, Japanese yen, Swiss franc, Canadian dollar, and Chinese yuan. While there are multiple global reserve currencies, the U.S. dollar alone will be defined as the "primary global reserve currency" for the purposes of this paper. Next, general characteristics of reserve currencies were discussed, including: use in international trade, stability in terms of future value, and network effects. Reserve currencies are more likely to come from countries that are stable politically and economically. Subsequently, a short history of foreign exchange was provided, detailing the changes in the international monetary system and explaining some of the mechanism driving it. As the gold standard began its decline around World War I, the U.S. dollar began to rise in importance worldwide. The dollar became the predominant currency during and after World War II as U.S. economic production expanded rapidly. The Bretton Woods system, established in 1944, solidified the dollar's role by making it the central reference point of the new monetary regime. After political and economic pressure forced the Nixon Administration to abandon the Bretton Woods system, the U.S. dollar was allowed to float, beginning a new system of fiat money. The final section examined the dollar's role as a reserve currency in the modern international monetary system by analyzing how it expands on the three traditional roles of a currency: medium of exchange, store of value, and unit of account. The dollar's major reserve currency roles include serving as a primary currency in international trade and in international debt securities, where it ranks among the top two currencies (along with the euro) in terms of use. The dollar also plays a critical role in the foreign exchange systems of foreign governments and is used in roughly half of all fixed exchange rate pegs. Finally, the dollar holds the highest share among all currencies in terms of foreign exchange reserves held by central banks.

Chapter 3 – The U.S. Dollar as Reserve Currency: Benefits and Drawbacks for the U.S. Economy

Introduction

The U.S. dollar is currently the world's primary reserve currency and possesses attributes that give it a special role in several areas of international finance and economics. The most recent increase in interest on the issue of whether the U.S. receives special economic and political privileges from its reserve currency status began during the global economic and financial downturn in the late 2000s, which later became known as the Great Recession. The debate on the dollar's benefits has fallen along a spectrum. On one side, there is a general belief that the strength of the dollar internationally is almost always beneficial, which is popular among political pundits and talk radio hosts. Academic researchers and financial news giants such as *The Wall Street Journal* and the *Financial Times* have analyzed the dollar's status as a main reserve currency in a more nuanced way, stating that it has benefits and drawbacks. In this chapter, the dollar's impact will be examined to determine more precisely what effects reserve currency status has on the U.S. economy and on government policy.

Benefits for the U.S. Economy

In the 1960s, the French finance minister Valéry Giscard d'Estaing argued that the use of the U.S. dollar as the global reserve currency was an "exorbitant privilege" for the United States in the international monetary system. [5] Giscard was irritated with the idea that the United States could simply print money to fulfill its obligations, including paying for imports. His argument

[5] The idea of the dollar's "exorbitant privilege" inspired the title of an excellent 2010 book by Barry Eichengreen - *Exorbitant Privilege: The Rise and Fall of the Dollar and the Future of the International Monetary System*. Eichengreen's research focuses on the history of the dollar's rise, its current status, and its prospects for the future.

was that this ability for the U.S. to run up what is called a current account deficit is unique to only the country whose currency is dominant worldwide (Canzoneri, Cumby, Diba, & Lopez-Salido, 2013). In this section, Giscard's claim that the dollar's status conveys significant benefits to the United States economy and trade position will be explored in addition to other benefits, such as seigniorage and low borrowing costs. In addition to determining what the benefits of primary reserve currencies are, an attempt will be made to determine the degree of those benefits.

One of the first discovered advantages of primary reserve currencies, and one that was frequently discussed in scholarly debates in the 1950s through the 1960s, is an increase in seigniorage for the government of the primary reserve currency. The *Financial Times* defines seigniorage as "the profit made by a government from the printing of money, literally the face value of the money minus the cost of physically making it" ("Seigniorage," n.d.). In other words, seigniorage is the income generated by the U.S. government because the value of dollars exceeds the cost of making them. American economist Barry Eichengreen puts seigniorage this way: "It only costs a few cents for the Bureau of Engraving and Printing to produce a $100 bill, but other countries have to pony up $100 of actual goods and services in order to obtain one" (Eichengreen, 2010). This simple definition leads us to the role of seigniorage specifically in terms of reserve currencies. First, it is important to understand that the Federal Reserve controls the money supply of dollars. In order to increase or decrease the money supply, the Fed buys or sells Treasury bills, which are short-term U.S. government bonds, from banks that are holding them. For example, if the Fed wants to increase the money supply, it would buy Treasury bills from banks. The bank who sold the Fed the Treasury bills receives cash, which in turn increases the number of dollars in circulation. Recall that as a medium of exchange, the dollar is held by people, businesses, and central banks in foreign countries around the world. The willingness by these non-U.S. stakeholders to hold U.S. dollars is effectively "an interest-free loan" for the U.S. government (Dobbs, Skilling, Hu, Lund, Manyika, & Roxburgh, 2009). The reason why it can be considered an "interest-free loan" is simple: the U.S. government can keep printing money for a few pennies per bill, and it will be held by a person or entity overseas because of high demand. According to an analysis by the McKinsey Global Institute, the Federal Reserve generates about $10-20 billion in seigniorage revenue per year (Dobbs, et al. 2009).

The second "privilege" the U.S. benefits from as the issuer of the primary global reserve currency is lower borrowing costs as a result of lower interest rates. Lower borrowing costs, which are also referred to as lower cost of capital, stem from high demand for dollars in foreign countries (Dobbs, et al. 2009). Foreign banks, businesses, and individuals hold significant amounts of dollars for several reasons, including a belief that the dollar is a safe haven that can protect against the depreciation of their local currency. Many of these foreign entities also see the U.S. dollar as convenient because of its frequent use in business and central bank transactions (Eichengreen, 2010). These foreign holders of dollar securities such as Treasury bills – which are essentially dollar equivalents – value the dollar's safety and convenience enough to purchase and hold them at a lower interest rate than is normally required. As a result, dollar securities typically have lower interest rates than foreign securities denominated in other currencies. (Eichengreen, 2010). Lower interest rates on the issuance of these securities mean that the U.S. government does not have to pay as much to borrow money; interest payments over time are lower.

In order to understand this effect better, its actual impact needs to be estimated. The McKinsey Institute found that when foreign purchases of U.S. government securities are isolated to only include foreign governments and sovereign wealth funds, the U.S. government's cost of capital is reduced by approximately 0.5-0.6% (Figure 5) (Dobbs, et al. 2009). However, it is important to note that lower interest rates can have negative impacts on banks and others that rely on interest income as well. After adjusting for this negative effect, the net benefit for the U.S. is approximately $90 billion (Dobbs, et al. 2009). Furthermore, researchers estimate that the U.S. government nets approximately two to three percent on interest expense related to general foreign liabilities against its rate of return from foreign investments (Eichengreen, 2010). The ramifications of this benefit are important for the U.S. balance of payments, which is simply a system of accounting for all international transactions of a country. The balance of payments of a country helps to determine the flows of money into and out of a country during a specific period of time. The current account is one of the major balance of payments accounts and includes the balance of trade (goods and services exports minus imports), net income from abroad, and net current transfers. Now, because the U.S. nets about a 2-3% reduction in interest payments, it can run a balance of trade deficit by this amount without increasing its debt unless it exceeds it. In other words, the U.S. can import and consume more goods and services than it exports because of this balance of payments advantage (Eichengreen, 2010). If one looks at the current account data for the U.S. economy, the U.S. has run a significant balance of trade deficit, and it has hovered around $40 billion since 2013 (Figure 6). When Giscard complained about an "exorbitant privilege," he was referring in part to what seemed like an unfair, asymmetric benefit for the U.S.; it can consume without worrying too much about the consequences. It turns out he was overlooking some of the risks and negative effects of being a reserve currency, which will be discussed in the next section.

Figure 5: Impact of reserve currency status on U.S. cost of capital

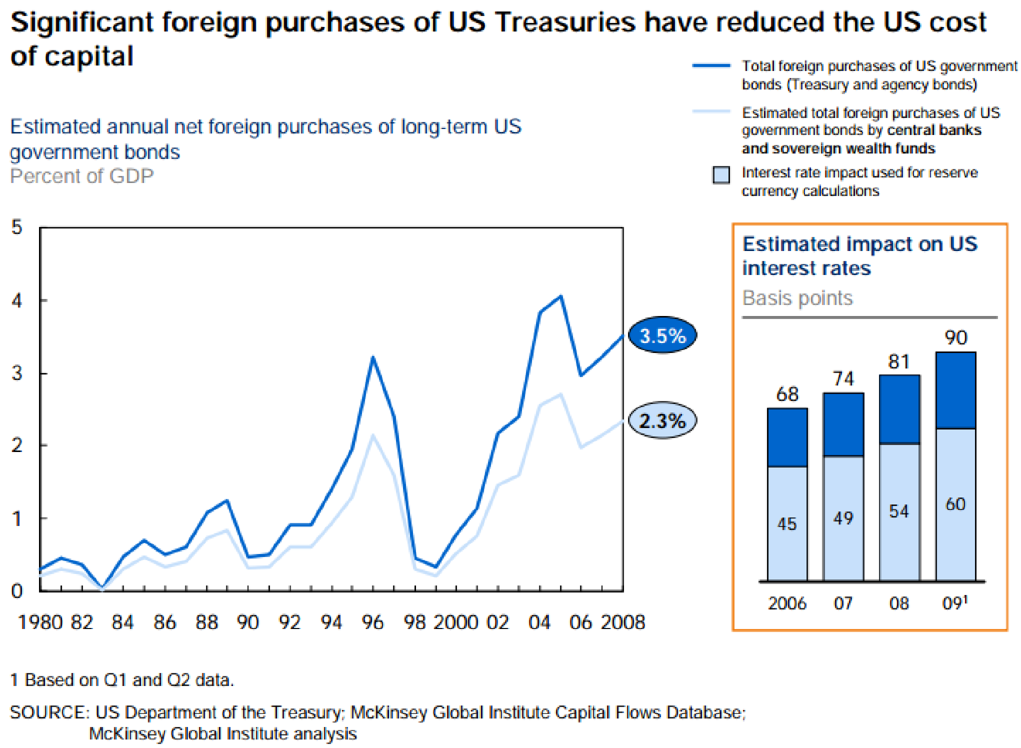
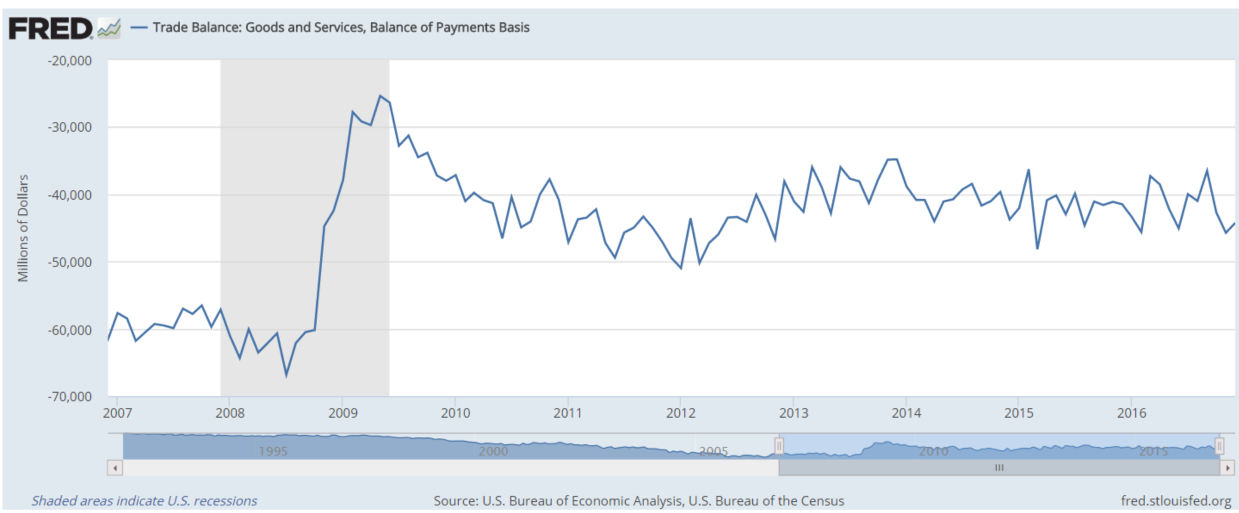


Figure 6: U.S. balance of trade since 2007



Drawbacks for the U.S. Economy

From this author's perspective, before the project was undertaken, the nature of the U.S. dollar's primary reserve currency status was assumed to be beneficial. In essence, Giscard's statement of declaration of the dollar's "exorbitant privilege" seemed true without any qualification. However, the reality is that the U.S. dollar's predominant status actually comes with several potential drawbacks and risks for the U.S. government and economy. This section will detail what these negative effects are and attempt to estimate their overall impact. The smaller question of whether the ultimate impact of U.S. dollar's dominant status is a net benefit or net negative to the U.S. economy is crucial to understanding the motivations behind the larger arguments of U.S. policy makers and those in foreign governments.

While seemingly counterintuitive, some of the benefits of the dollar's primary reserve currency status paradoxically contribute to significant negative effects. Because the dollar is in demand abroad and the U.S. acts "as a magnet to the world's official reserves and foreign assets," the dollar's value is inflated by as much as five to ten percent compared to other currencies (Dobbs, et al. 2009). When we hear the phrase "strong dollar" on the news, the assumption is that that is a good thing, but in reality, it can be either good or bad. For the U.S. government, the advantages related to a strong dollar are also the benefits that come with being a reserve currency in general – lower interest expense on public debt and seigniorage income. There are also intangible political benefits, such as a desire for the U.S. to be a hegemon both politically and economically. However, the strength of the dollar also has harmful effects on firms and industries with a strong emphasis on exporting. When the dollar is strong relative to other currencies, foreign imports (foreign goods/services) are relatively cheaper for consumers in the U.S.; consumers receive more goods for the same cost, one dollar. At the same time, U.S. firms struggle to export their goods and services to other countries because they are relatively more expensive. Perhaps less apparent is that a strong dollar can also negatively impact U.S. domestic firms that compete with imported goods. For example, the U.S. steel industry has struggled in recent years because industrial companies in the U.S. preferred to use steel imported from other countries such as China because of its significantly lower cost. This impact on trade competitiveness is estimated by McKinsey to cost the U.S. economy between $30 and $60 billion depending on factors like GDP growth and exchange rate fluctuation (Dobbs, et al. 2009). In addition to lower competitiveness, an increase in the strength of the dollar due can also be a harm to consumers in the form of lost jobs. Since many individuals in the U.S. work for exporters – exporting makes up approximately one-eighth of the U.S. economy – periods of time when the dollar appreciates can contribute to layoffs at these firms (Lange, 2015). From June 2014 to June 2015, the U.S. dollar appreciated about 20% against major currencies, including the euro, the Japanese yen, and the British pound (Figure 7). At the large steelmaker U.S. Steel alone, the company was forced to lay off 2,800 workers in the first half of 2015 due to reduced exports of its products to Europe and lower competitiveness against steel from South Korea and China (Lange, 2015). Overall, one estimate of the total negative impact on exporting sectors is a loss of jobs between 400,000 and 900,000 (Dobbs, et al. 2009).

Figure 7: U.S. dollar index from June 2014 to January 2016

The economic trustworthiness of a currency is generally perceived as a requirement for it to become a reserve currency. As a result, the current major reserve currencies are generally considered safe havens. A safe haven currency is a currency that is attractive to investors during times of financial and economic crisis. Safe haven currencies are considered more secure than other currencies because of the economy and government backing them. During economic downturns, investors sell riskier investments (e.g. in equities) and buy U.S. Treasuries and the dollar because it is assumed that they will protect the value of a portfolio as markets fall. In financial terms, the movement of money from riskier assets to safer assets results in “capital inflow” to the U.S. Capital flows occur when an entity sells a stake in a domestic investment and invests in a different, foreign investment. A large scale movement from a more volatile currency to a safe haven currency during times of crisis is called a capital flight. In general, capital flight occurs when capital flows out of a currency that is considered “soft” to a safe haven currency such as the U.S. dollar, the Japanese yen, the euro, etc. “Soft” currencies are generally more volatile because they are backed by developing economies and government and monetary policies that can be erratic. Given this background information, let us consider an example of how the dollar’s safe haven status helps to prop up its value. The general scholarly consensus is that the U.S. entered its worst economic downturn since the Great Depression in the late 2000s. In theory, the dollar, if it was a not a safe haven currency, would have depreciated because capital would supposedly have left the country for a currency that was perceived as more stable. Instead, the dollar only declined about 7% in 2007 (Eichengreen, 2010). Even though the U.S. economy was in recession, foreign investors and central banks, many of whose countries were also mired in recession, sold their assets and bought dollars because they still perceived it as safer than their own currency. Once again, the impact of this continued strength in the dollar is beneficial for U.S. government borrowing; however, because of the weakness in the U.S. economy, the economic benefits are largely canceled out by the significant impact on trade competitiveness. Overall, the negative impact of limited export competitiveness is between -$30 billion and -$60 billion in an average year (Dobbs, et al. 2009).

Net Economic Effects

After considering both the individual economic benefits and drawbacks separately, let us now consider their impact together on the overall U.S. economy. According to an analysis by the McKinsey Institute, which used the period from July 2007 to June 2008 as a baseline for "normal" economic conditions, the United States receives a net benefit from being a primary reserve currency of 0.3-0.5% of GDP, which is approximately $40-70 billion (in 2009 dollars) in net gain (Figure 8) (Dobbs, et al. 2009). This calculation takes the net gain from the lower interest cost of government debt and the higher income from seigniorage and subtracts the cost of lower trade competitiveness. This estimate of the economic benefits for the U.S. is lower than a calculation by researcher and professor Barry Eichengreen of the University of California, Berkeley, who estimates that the U.S. receives a benefit equal to 1.5% of GDP (Eichengreen, 2010). Eichengreen does not specify the exact formulation for his calculation, but he argues qualitatively that the U.S. government receives a substantial benefit from being able to borrow during economic downturns at a low cost of capital because of capital inflows (Eichengreen, 2010). Unlike the McKinsey study, Eichengreen did not separate his estimate of the economic benefits into a "normal" year and a "crisis" year. McKinsey's analysis used the time period from July 2008 to June 2009 as its baseline for the net income generated during a "crisis" year (Figure 9). The study found that the benefits from primary reserve currency status were largely canceled out during a crisis and were in fact negative on the low end of the range. The McKinsey researchers estimate that in a crisis, the net benefit is about 0.0% to 0.2% of GDP or -$5 billion to $25 billion (in 2009 dollars). These numbers suggest that during an economic crisis, the benefit of being the primary reserve currency is largely erased and not as much of the "exorbitant privilege" that Giscard suggested. The negative impact on export competitiveness appears especially troublesome during periods of economic contraction because of the negative impact it has on the profits of large multinational corporations and specific sectors that have a large exporting focus.

Figure 8: Net benefit of reserve currency status to U.S. in a normal year

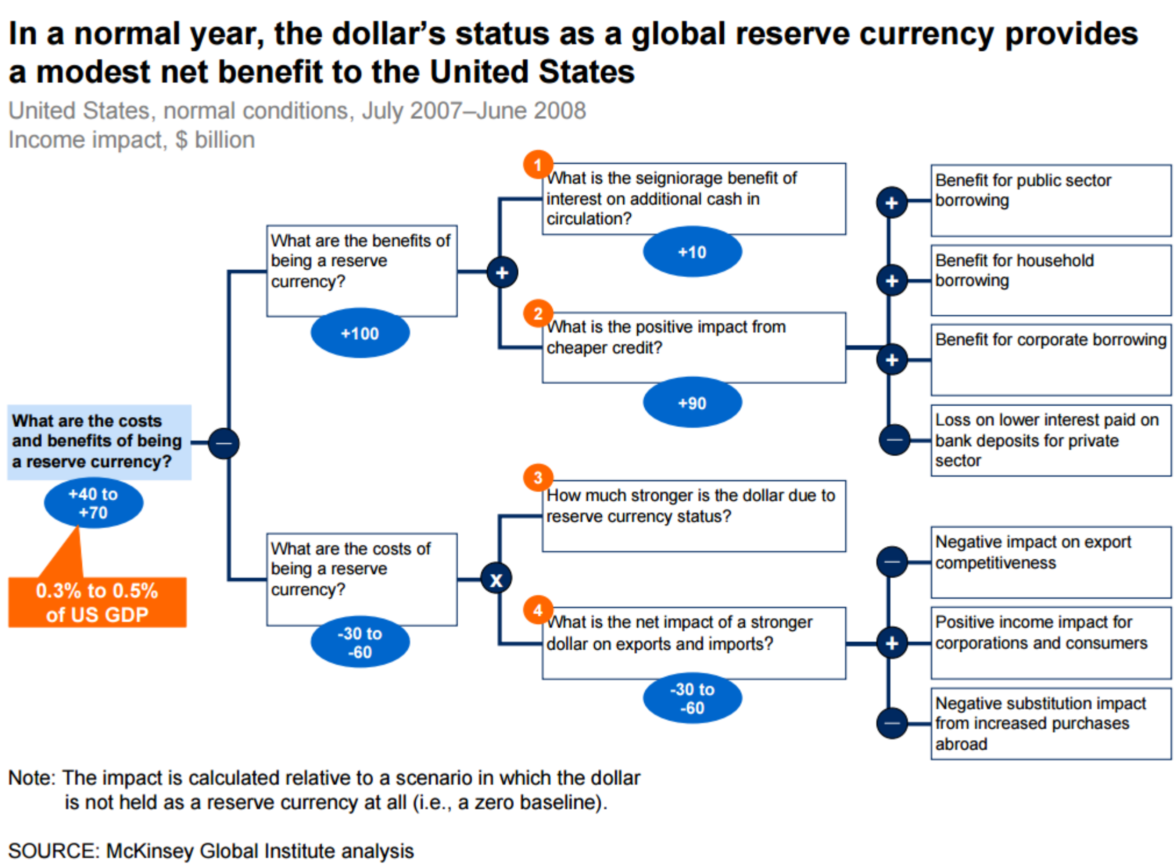
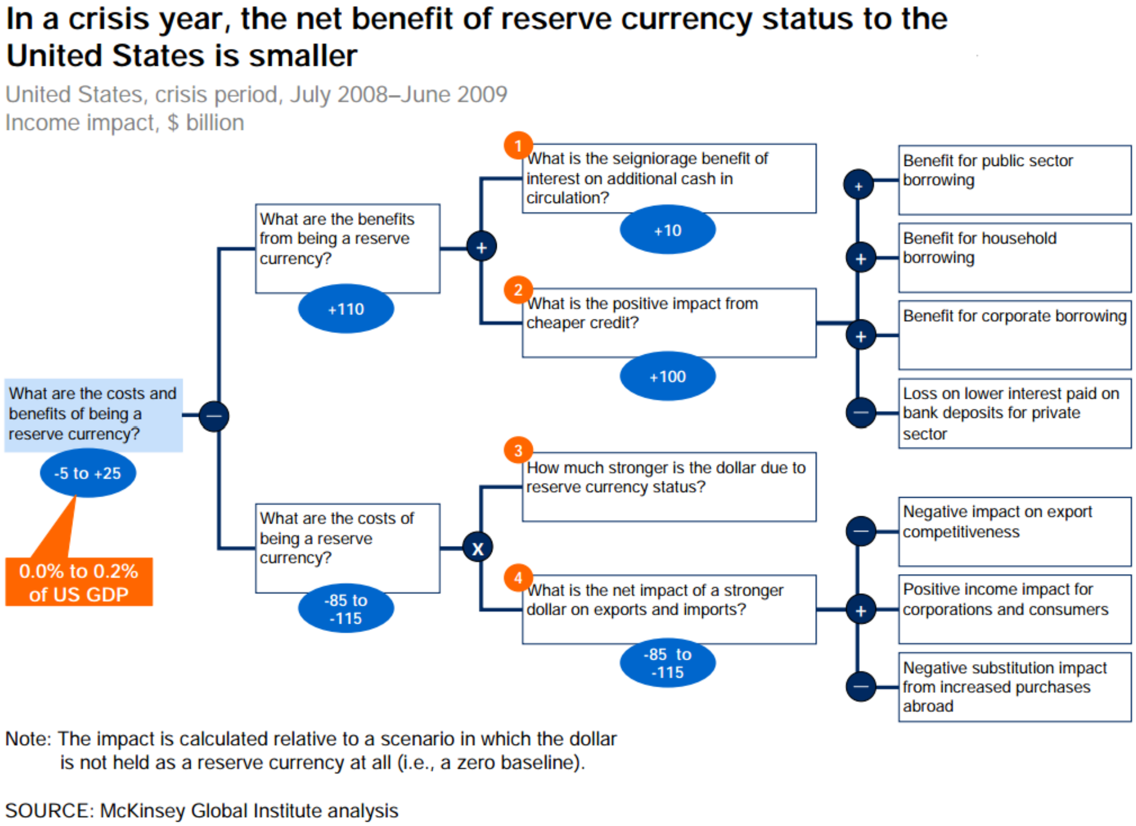


Figure 9: Net benefit of reserve currency status to U.S. in a crisis year



<u>Chapter Summary</u>

In this chapter, the economic benefits, costs, and net effects for the U.S. economy because of its primary reserve currency status were explored. The economic benefits include an increase in seigniorage, defined as income generated by the U.S. government because the value of dollars exceeds the cost of making them. Seigniorage is estimated to have only a small net benefit of $10-20 billion per year. The second benefit for the U.S. is a lower cost of capital due to high demand by foreign entities abroad to hold dollars. The U.S. government's cost of capital is reduced by approximately 0.5-0.6%, but after adjusting for negative impacts on banks and other entities impacted by lower interest rates, the net benefit for the U.S. in dollars is smaller at approximately $90 billion. Next, the main cost for the dollar as a primary reserve currency, limited export competitiveness due to the inflated strength of the dollar, was explored. Because the dollar is consistently stronger relative to other currencies than it would be without its dominant status, export-driven industries in the U.S. are negatively affected by reduced profits and substitution of cheaper goods from abroad. The negative impact of limited export competitiveness is between -$30 billion and -$60 billion in an average year. Finally, the net effects of the benefits and costs were examined together. Eichengreen estimated that the U.S. receives an extra 1.5% of income because of its reserve currency status. A McKinsey study analyzed the U.S. during a “normal” year and during a “crisis” year to determine the impacts in each case. In the normal year, the U.S. receives about 0.3-0.5% of GDP in net income, while in the crisis year, the U.S. receives a smaller 0.0-0.2% net benefit.

Chapter 4 – Prospects for the Chinese Yuan to Undermine the U.S. Dollar's Reserve Currency Status

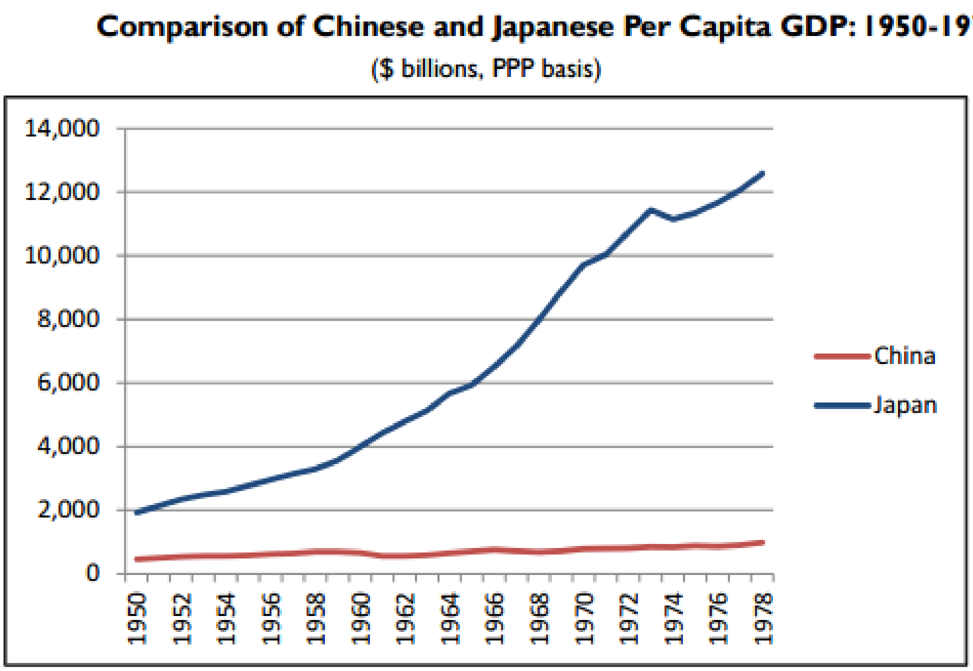
Introduction

As the Great Recession raged from 2008-2010, the U.S. dollar was a popular target for some foreign officials in China. Chinese officials cited a host of reasons that the dollar should be replaced long term with their own currency, the yuan, in what *Forbes* described as "China's assault on the dollar" (Chang, 2009). By March 2009, both President Obama and U.S. Treasury Secretary Timothy Geithner were forced to publicly acknowledge and express disagreement with the Chinese government's concern. Other respected financial news publications, including *The Wall Street Journal* and the *Financial Times*, began to opine on the potential for the U.S. dollar to be replaced by the yuan. In this chapter, the reasons for and against the yuan becoming a primary reserve currency will be examined.

Reasons for Increased Use of the Yuan

China's growing economy is the first and most basic reason cited for greater usage of the Chinese yuan, in addition to the fact that China holds the world's largest population within its borders. Recall that some of the characteristics of a global reserve currency are the depth of the country's financial markets and the strength and size of the overall economy. In order to understand China's growth and how it reached its current placement in the global economic order, let us consider the history of the Chinese economy starting just prior to the major economic reforms of 1978. The People's Republic of China was established in 1949 after the Communist Party led by Mao Zedong gained victory in the Chinese Civil War. Chairman Mao Zedong instituted a command economy, meaning that "a large share of the country's economic output was controlled by the state, which set production goals, controlled prices, and allocated resources throughout most of the country" (Morrison, 2015). The government emphasized two major economic goals, rapid industrialization and a self-sufficient Chinese economy. The agricultural industry was collectivized by grouping small farms owned by individual households into larger communes. Industrialization was led by state-owned enterprises (SOEs), which controlled 78% of industrial production by 1978 (Morrison, 2015). SOEs made it easier for the communist government to centrally plan prices and output targets. Initially, the Chinese economy grew at a relatively strong rate, with an increase in real GDP growth from 1950-1978 estimated between 4.4% and 6.7% (Morrison, 2015). Despite the improvement in China's economy, per capita GDP lagged far behind other countries in the region at that time (e.g. Japan) (Figure 10).

Figure 10: Per capita GDP in China and Japan from 1950-1978



Source: Morrison, 2015

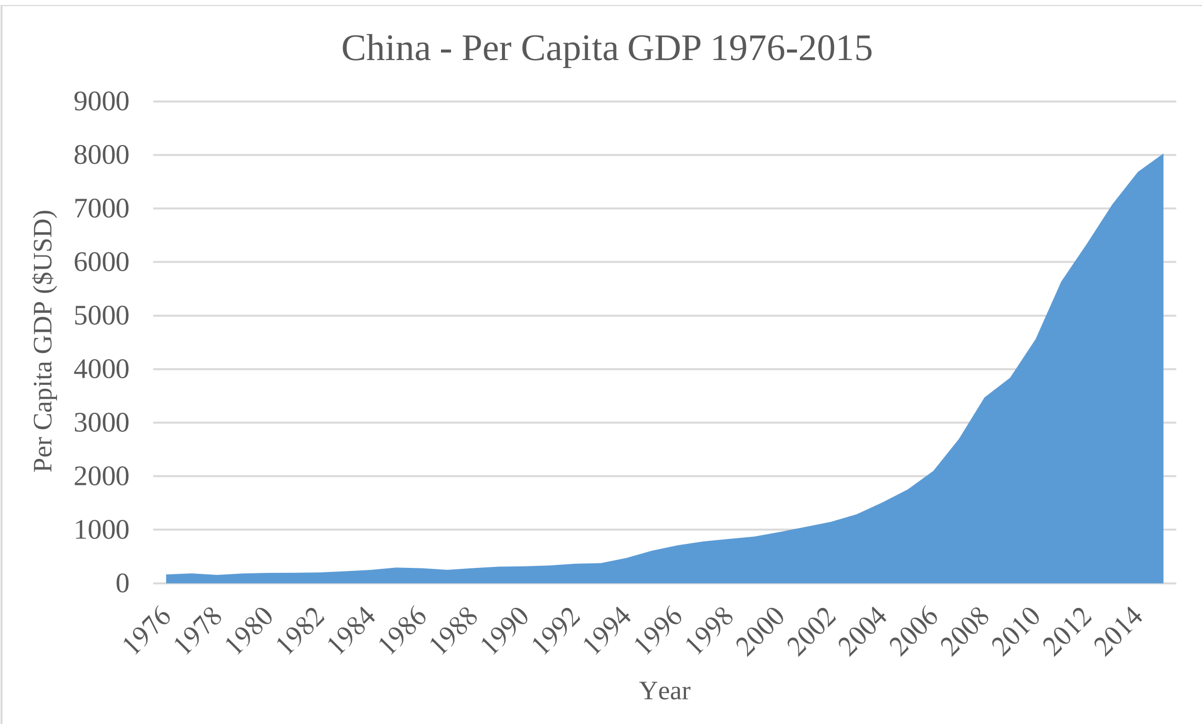
While Japan's postwar economic growth may seem to be an unfair comparison for China, it highlights a major difference between the two economies, the presence of political turbulence.

Mao Zedong led two major social and economic programs that significantly destabilized China's economy (Morrison, 2015). The first program was the Great Leap Forward, the name given to the collectivization of China's vast agriculture industry and the push for rapid industrialization. Private farming was banned, and the central government dictated a set of far-reaching farming policies for the communes. The failure of many of these policies led to a massive famine in China from 1958-1960 that took the lives of an estimated 45 million people and decreased per capita GDP by 20.3% (Morrison, 2015). The second major program, dubbed the Cultural Revolution, was primarily social and political in nature with the purpose of implementing a purer form of communism and removing any trace of Western and traditional cultural elements. This movement took place from 1966-1976. Despite the lack of direct impact on economic policies, the Cultural Revolution caused significant political upheaval that had an indirect negative economic impact, including reducing industrial production (approximately -14% in 1967) due to closures and shortages of raw materials, lower levels of foreign imports, stagnation of agricultural production, and a lack of highly educated workers due to university closures (Morrison, 2015).

In December 1978, the Chinese government led by Deng Xiaoping began to reform the economy by slowly decentralizing economic control and "opening up" the economy. One example of this decentralization was in agriculture, where private farmers were allowed to begin selling a portion of their crops again. Another significant area of reform was in trade. The government enacted trade liberalization policies, which lowered barriers to trading with other countries and attracted greater foreign direct investment in China. In the early 1980s, the government increased its emphasis on reforms related to exports. Before these reforms, foreign trade never made up more than 10% of total GDP. By 1986, however, exports made up nearly

35% of total GDP, and the large number of Chinese products in other countries has since become a cultural phenomenon (e.g. "Made in China"). Since 1976, China's economy has grown at a rapid pace, averaging nearly 10% GDP growth through 2014. In addition, China's per capita GDP has grown at an almost exponential rate, increasing from $163 in 1976 to $7,925 in 2015 (Figure 11).

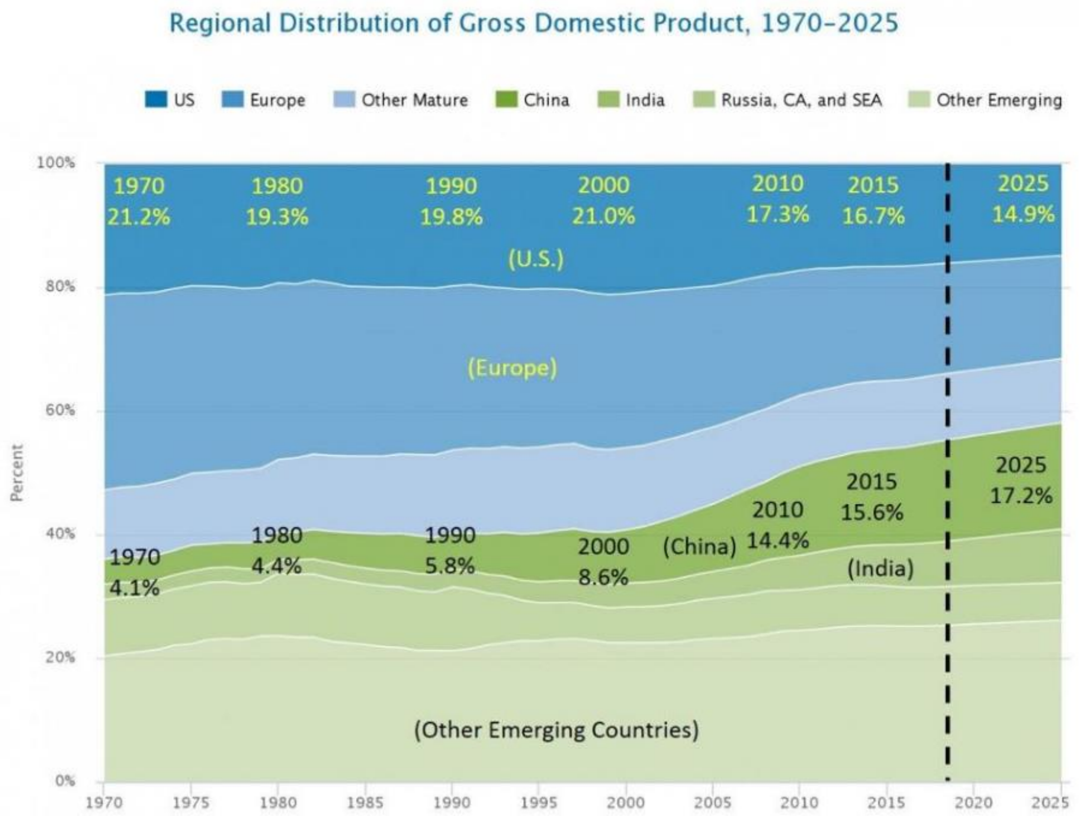
Figure 11: China's per capita GDP from 1976-2015



Source: *World Bank* data

To better understand China's economic growth in terms of reserve currencies, it needs to be placed in perspective. China surpassed the U.S. in terms of GDP (purchasing power parity) in 2013 with a total output of $16.788 trillion. The U.S. and Europe have seen their shares of global economic output steadily decline compared to the rest of the world since 1970, while the economic outputs of China and other emerging countries have risen (Figure 12).

Figure 12: Distribution of GDP globally by leading country and region



Source: Patton, 2016

Despite China's recent push to diversify its economy to be more self-sufficient and less reliant on exports, China still leads the world in terms of exports with a total of $2.431 trillion in 2015. As a percentage of GDP, exports of goods and services have declined from a peak of 37.2% in 2006 to 22.09% in 2015. In comparison, U.S. exports as a percentage of GDP remain significantly lower at 12.55% (*World Bank).* Thus, the Chinese economy is now more diverse but still reliant on exports.

The question now is how exactly economic size and strength correlate to reserve currency status. An econometric analysis by Arvind Subramanian, a senior fellow at the Peterson Institute for International Economics and the Center for Global Development, provides some quantitative support for the descriptive notion that there is a connection between reserve currencies and the strength of an economy. Subramanian's analysis determined the correlation between the relative sizes of different economies to their total shares of official reserves as measured by the International Monetary Fund (IMF). The largest and most significant correlation was found between reserve currency status and a country's leading status in GDP and trade (Subramanian, 2011). In addition to trade and GDP, the third important factor with a high correlation to reserve currency status is a country's net international investment position, specifically whether or not it is a net creditor (Subramanian, 2011). Because China has a surplus in its cumulative balance of payment position (i.e. it exports more than it imports), it is a net creditor. The U.S., however, is considered a net debtor nation because it has a negative net investment position. Countries who rank highly in fundamentals such as GDP and trade and possess net creditor status therefore would be expected to have a higher share of total reserves. Subramanian found that the U.S. had a higher share of official reserves than expected given its fundamentals (Subramanian, 2011). Statistical analysis supports the idea that the Chinese economy's broad dominance may predict a transition in reserve currency status. However, given the historical persistence of incumbent reserve currencies, there is a transition period of a debatable length when moving from the incumbent reserve currency to a new reserve currency (Subramanian, 2011). The potential timeline for a transition from the dollar to the yuan will be discussed later in this paper.

In addition to economic reasons for a transfer of dominant reserve currency status to the yuan, some proponents have offered political reasons. The decision made by a central bank to hold a new currency in its reserves is an economic and a political decision (Liao & McDowell, 2016). In many ways, China and the Chinese yuan present an alternative to the liberal international order that is currently pervasive with the U.S. and Europe as dominant powers. The financial crisis in the U.S. from 2008-2010 sparked debate on both the U.S. role as a reserve currency. In March 2009, the head of China's central bank Zhou Xiaochuan publicly stated:

> The acceptance of credit-based national currencies as major international reserve currencies, as is the case in the current system, is a rare special case in history. The crisis again calls for creative reform of the existing international monetary system towards an international reserve currency with a stable value, rule-based issuance and manageable supply, so as to achieve the objective of safeguarding global economic and financial stability (Chang, 2009).

Despite the use of political language, Xiaochuan's criticism of the U.S. dollar's dominant status is apparent, and he brings up a few interesting issues. His suggestion that the world move to "an international reserve currency with a stable value" implies concern with the security of the dollar as a safe haven currency. His comments came about one week after the U.S. Federal Reserve announced an additional $1 trillion of quantitative easing through the purchase of Treasury bonds and mortgage securities. With the financial markets in the U.S. showing rare signs of collapse, the Chinese government was left with fears that its trillions in dollar reserves would suddenly drop in value. We know in hindsight that foreign purchases of dollar-denominated securities actually increased from 2008-2010, highlighting the resilience of the dollar's safe haven status (Eichengreen, 2011). The Chinese and the rest of the world arguably did not know this for certain as it seems counterintuitive that a country's currency would actually appreciate in value during a major downturn. In the short term, China likely wanted assurances from the Obama Administration that it would receive more concessions at the March 2009 G20 summit that would increase its international influence economically and monetarily. In the medium term, it was concerned with receiving expanded voting rights at the IMF (Chang, 2009). Notably, China's voting power at the IMF has been enlarged multiple times since the recession in 2009.

From the perspective of the author, China's move to start a debate on global reserve currencies during a financial crisis is interesting and consistent with previous policies. During the Great Recession, China's economy continued to grow in spite of the downturn, and its willingness to hold trillions in U.S. Treasury securities gave it substantial bargaining power. By starting a debate at that moment, the Chinese government was making a long term political move to set itself up better for a future time when the yuan would be ready to take over. Although the yuan possessed few of the characteristics of a reserve currency in 2009, such as free convertibility, the impact of the statements by both Xiaochuan and the Chinese premier, Wen Jiabao, continue to be meaningful, especially on the general scholarly debate on reserve currencies. The Chinese government also realized that its reliance on both exports and its ownership of trillions in dollar reserves gave it little leverage to suddenly remove the dollar from its dominant position. Despite the Chinese government's long term, deliberate strategy in the international sphere, the desire of many officials remains to increase political influence by at least growing the use of the yuan, if not overtaking all other currencies outright (Liao & McDowell, 2009). The idea is that a push for the Chinese yuan would result in higher Chinese "soft power." Soft power is defined by Harvard professor Joseph Nye as "the ability to get what one wants by attraction and persuasion rather than coercion or payment" (Nye, 2012). China has recently attempted to increase its soft power through a variety of initiatives, including: spending on aid programs in Africa and Latin America, spending billions on the spectacle of the Beijing Olympics in 2008, and spreading language and culture by encouraging students to study abroad and inviting foreigners into the country (Nye, 2012). However, the question remains if intangible, soft power benefits outweigh the potentially negative economic effects from becoming a global reserve currency. As will be discussed in the next parts of the paper, there is a substantial amount of evidence that suggests a potential shift to the Chinese yuan would have considerable feasibility issues and potentially be detrimental to the Chinese economy and trade position.

Reasons Against Increased Use of the Yuan

While there are legitimate, theoretical reasons for increased use of the Chinese yuan, there are also significant challenges that could prevent its immediate use as the world's dominant reserve currency. For many investors, China's political system and its frequent interference in its economy and financial markets reduce their trust in the Chinese yuan. While primary reserve currency status is largely based on financial fundamentals, there is also a significant political component. To put it simply, the U.S. dollar is trusted more by investors at this point in time because of its backing by the U.S. government and because of the openness of the U.S. economy. High level Chinese government officials have stated repeatedly - in the last five years especially – that the goal for the yuan is a greater international role and influence. However, the consensus in academia and among practicing financial analysts and economists is that China's capital controls are holding back the yuan from reaching the Chinese government's publicly stated goal of a more internationalized yuan ("China's Lofty Currency Plans," 2014). The government's actions in the pursuit of this goal have frequently oscillated between liberalization and protectionism. At times, the Chinese government has taken specific actions to increase the yuan's role internationally by reducing capital controls that prevent the yuan from being traded and converted freely. However, almost as quickly as a step is taken forward to grow the Chinese yuan's international role, a step is taken backwards that returns the yuan back to protectionism, restricting its potential for increased use in the foreign exchange market. This idea that the Chinese government has wavered between protecting the yuan's value while at the same time attempting to augment its global role is confusing, so the following paragraphs will illustrate it with several examples and provide additional context.

Despite the zig-zag nature of China's actions in regards to the yuan, the long-term goal of the government remains increasing the usage and prestige of the currency worldwide. According to Qu Hongbin, co-head of Asian Economic Research and Chief Economist at HSBC, "China has a three-pronged approach to renminbi internationalisation: expand the currency's role in foreign trade settlement -- it has already overtaken the euro to become the second to the dollar -- encourage its use in cross-border investment, and develop offshore renminbi centres" ("China's Lofty Currency Plans," 2014). Hongbin's analysis of China's long-term goal is supported by actions taken in the last ten years. In 2007, the yuan's daily trading band against the dollar was widened to plus or minus 0.5 percent. Over the last ten years, China has loosened its grip on this requirement, and it now allows the yuan to float within a two percent band of the daily value fixed by the central bank. Recall that unlike the U.S. dollar and the other major reserve currencies, the yuan does not float freely. Instead, the currency's value is fixed to the dollar within a specific band set by the Chinese government. When the currency begins to move towards either end of the range, the Chinese central bank intervenes by buying or selling its own currency. The benefit of such a government-influenced system is greater economic stability for China specifically since it allows the government to quickly stave off a potential economic crisis by selling off currency reserves. In the last two years, with significant downward pressure on the yuan, the Chinese government has been forced to sell $833 billion in currency reserves to slow a precipitous drop in the currency's value (Lee, 2017). While this intervention has arguably been successful in preventing a significant loss in currency value, it has also resulted in considerable uneasiness for investors who do not know if the yuan is trading at its true value. Yu Yongding, a former academic member of the PBOC's monetary policy committee, notes that "intervention can limit volatility, but it can't change the trend. Ultimately, you'll have to give up anyway" (Lee, 2017). Yongding comments that the Chinese government can only slow a depreciation of the yuan, but it cannot completely stop it. At some point, the government will be forced to devalue the yuan in response to downward pressure on the currency's value. Because the Chinese yuan's value could be reassessed and marked at a different value without notice, its potential to be a reserve currency is harmed. Investors and central banks, who desire transparency when investing in currencies, do not have any certainty when investing in Chinese yuan. The government-based currency system contrasts the market-based system of the U.S. dollar, the euro, and the Japanese yen, which are allowed to float freely. In the case of these other major currencies, investors and central banks do not have to fear that the currencies' value is inaccurate or being intentionally depreciated or inflated. Until China allows the yuan to float freely, it appears that the currency will continue to struggle to gain much traction in terms of its use in international transactions.

Notably, Chinese currency intervention has drawn the scorn of government officials from regions around the world in recent years, and it was a focal point of current U.S. President Donald Trump's campaign in 2016, who promised to label China a "currency manipulator" on his first day in office. The issue has been a source of tension between the U.S. and China, especially in regards to trade negotiations. Trump's argument during the campaign was that China's frequent devaluations of the yuan give the country a competitive advantage in exporting goods. However, the Trump campaign's argument has become outdated in recent years as the situation has reversed (Gough, 2016). During China's peak period of economic growth in the mid- to late-2000s, foreign money poured into China as foreigners sought Chinese goods and moved to invest in new Chinese businesses. In response to this inflow of cash, the Chinese government kept the value of the yuan relatively stable, not allowing it to appreciate. The reason is because it did not want to hurt its large manufacturing industry, which relied on the weaker yuan to export goods at lower costs than U.S. manufacturers (Gough, 2016). At this time, U.S. lawmakers rightfully claimed that China was manipulating its currency to improve its trade position and was hurting U.S. manufacturers. However, in the last two to three years, China's economic growth rate has slowed, and the amount of money flowing into the country has also slowed. The result is that some economists now believe that the yuan is either correctly valued or overvalued and should decline in the future (Gough, 2016). In the last seven years, the yuan has been one of the strongest currencies in the world, but its value has depreciated in a stair step fashion as the government has devalued the government a few times since 2014 (Figure 13). The recent depreciation of the currency highlights a different issue for the Chinese government. Since people are concerned about the decline in the yuan's value, many are fleeing the currency to safer currencies such as the dollar, euro, or yen. A correction in the yuan of significant length could potentially undermine the Chinese government's argument that the yuan is worth holding (Gough, 2016).

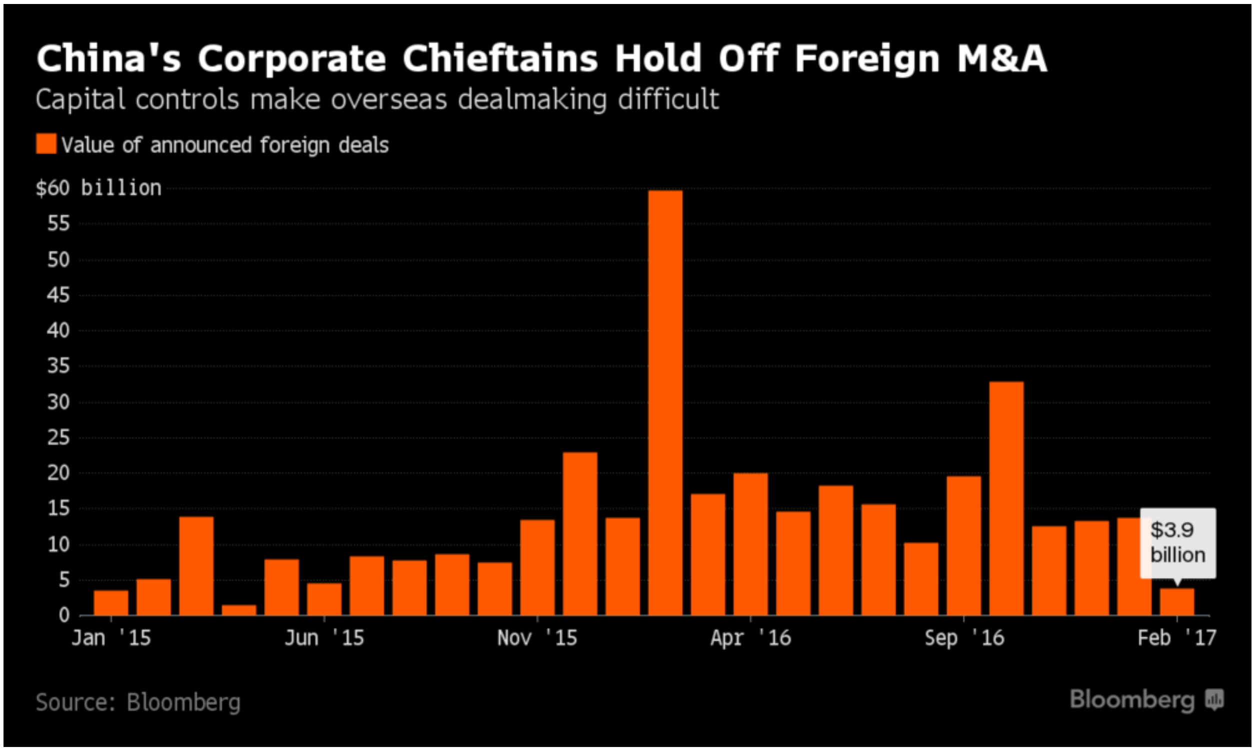
Figure 13: Yuan-dollar exchange rate from 2012-2017

Source: Bloomberg

The presence of capital controls has also been a significant issue in the yuan's rise to prominence. In October 2016, the yuan was officially designated as an International Monetary Fund reserve currency and was added to the IMF's basket of reserve currencies known as the special drawing right (SDR). The recognition was a substantial victory for the Chinese government, and the official recognition by the IMF was seen as an elevation of the prestige of the yuan. The People's Bank of China stated that "the inclusion into the SDR is a milestone in the internationalization of the renminbi, and is an affirmation of the success of China's economic development and results of the reform and opening up of the financial sector" ("China's Yuan Joins Elite Club," 2016). Additionally, the central bank promised that reforms of its capital markets and capital controls would continue in the future. The process to add the yuan as an IMF reserve currency began in earnest in November 2015. During the process, the Chinese government loosened capital controls on the yuan. In April 2015, just before the initial IMF announcement, China announced it would allow foreign firms to freely convert foreign currencies into the yuan and began permitting them to buy ownership stakes in domestic Chinese firms using their newly converted yuan ("China to Loosen Capital Controls," 2015). Another example of China's liberalization of its capital controls came in December 2016 when it began to allow increased access to certain domestic sectors, including railway equipment and vehicle batteries, while leaving access to many other sectors restricted (Martina, 2016).

However, despite assurances to the IMF and to foreign governments that it would continue to open up access to its markets and reduce capital controls, China has largely become more restrictive of its capital controls in the past year. In November 2016, the government reversed its policies that mostly allowed capital outflows and began to restrict them in response to the continued depreciation of the yuan (Wildau, Weinland, & Mitchell, 2016). Through the move, the Chinese government was also seeking to increase its regulation of investment overseas by its citizens; the outward flow of investment in China rose to an all-time high of $161 billion in 2016, which added to the depreciation of the yuan as capital flowed out of the country. By adding back capital controls, the government was attempting to retain stability over the currency, but the move upset both foreign investors and Chinese watchdogs alike (Wildau, Weinland, & Mitchell, 2016). In early 2017, the backlash against the government's decision to restrict FDI outflows had grown. Chinese company executives spoke out against the reinstatement of capital controls, which had reduced outward FDI by 74% year-over-year ("China's Capital Controls Trigger a Backlash," 2017) (Figure 14). In addition to growing resentment both domestically and abroad, the return to capital controls greatly reduces the chances of the Chinese yuan becoming the primary world reserve currency in the short term. Without political consistency from the Chinese government, foreign investors and central banks have no assurance that the value of the currency will not be changed on a whim. Given the recent drop in the value of the yuan, the Chinese government is faced with a difficult decision: continue to prop up the yuan through currency intervention and the reinstatement of capital controls, or reverse course and begin to fully remove the regulations surrounding the yuan. Without a freely floating currency, greatly reduced capital controls, and political stability and transparency, the Chinese yuan will not be able to continue to increase in importance moving forward.

Figure 14: Level of outward mergers and acquisitions in China



Source: Bloomberg

There are also several economic and financial factors that could inhibit the yuan’s rise to become the primary global reserve currency. One important factor that the U.S. dollar possesses over both the yuan and other currencies is well-developed capital markets (Galati and Wooldridge, 2006). Recall from chapter 2 that as a medium of exchange, a reserve currency must be highly liquid, meaning that it can be converted quickly into cash at a low cost. Central bank officials who wish to intervene in foreign exchange markets to prop up the price of their own currency must be able to rapidly sell off their reserves and purchase their own currency. The dollar's liquidity makes it the preferred option for currency interventions by central banks; the dollar possesses both ease of conversion and high foreign demand. As a result, a foreign government can quickly sell its holdings of U.S. dollars in the form of securities such as U.S. treasury bonds and buy back its own currency to prop up its value. Additionally, dollar securities, in the form of U.S. Treasury bonds, have other distinct advantages over arguably every other currency security. U.S. Treasury bonds are issued by only one organization, the U.S. government. In comparison, the European bond market has twelve issuers of treasury bonds, and the same variety factor is true for the other major issuers in Europe and Asia (Galati and Wooldridge, 2006). In terms of total international bond issuance, U.S. Treasury bonds, European bonds, and Japanese bonds lead the world with nearly equal amounts of bonds issued; however, China lags far behind with only a small fraction of the total market share (BIS, 2016). The central point behind this discussion on bond markets is the importance of the dollar's incumbency in this area. Because the dollar has been the dominant reserve currency since World War II, the U.S. government has had ample time to build an efficient market for government bond issuance. In turn, investors around the world have a large amount of trust in the stability of the U.S. market. For those investors who wish to invest in other government treasuries, there are two major and sufficient alternatives in European and Japanese bonds. The Chinese government can potentially increase its share of the bond market as its economy continues to grow relative to the rest of the world, but the challenge will be building sufficient trust from investors and central bank officials.

An important factor in determining the depth of a currency's use internationally is foreign exchange turnover. The Bank for International Settlements provides data for currency turnover in both traditional spot transactions, and in more complicated forms of foreign exchange such as forwards, swaps, and options. According to the latest available data from April 2016, the U.S. dollar has a significant lead in terms of turnover over the euro and the yen with approximately $4.44 trillion in turnover, while the yuan has the 8th largest daily turnover at only $202 billion (Figure 15). In this specific metric, the Chinese yuan's low ranking reflects one of the more common criticisms of China's candidacy for primary reserve currency status: that the country's economy lacks depth in its financial markets.

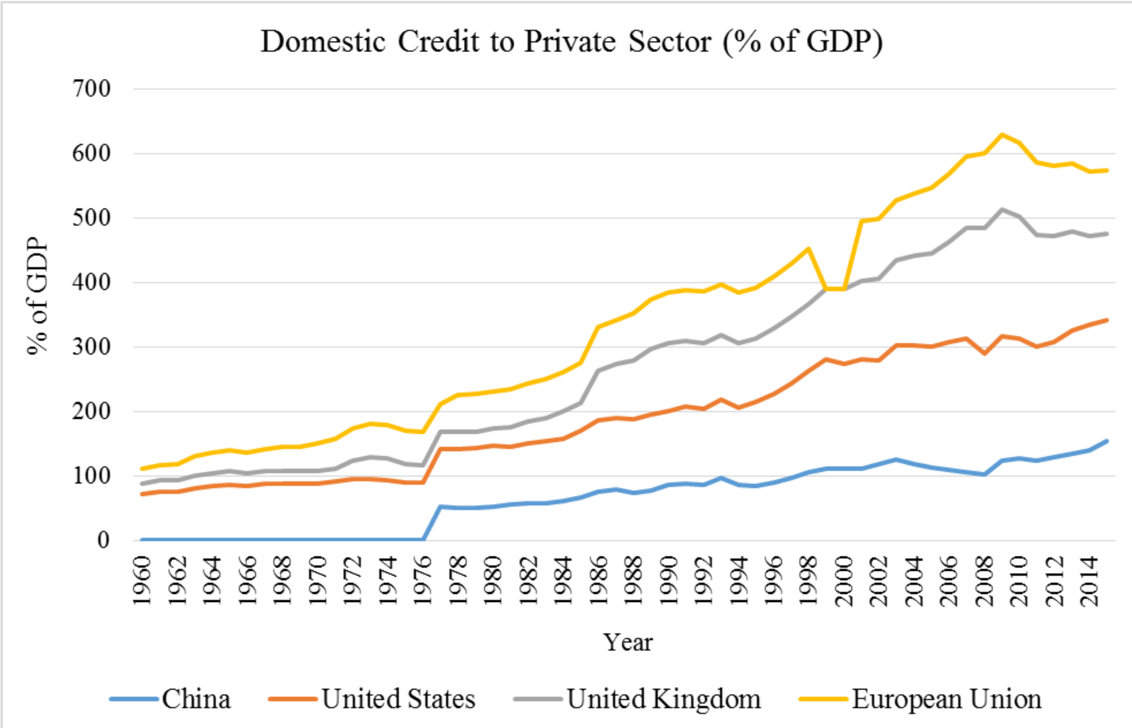
Figure 15: Daily average foreign exchange turnover in April 2016 (by currency)

OTC Foreign Exchange Turnover - April 2016 Daily averages, in millions of US dollars						
Currency	**Total**	**Spot transactions**	**Outright forwards**	**Foreign exchange swaps**	**Currency swaps**	**FX options**
U.S. dollar - USD	4,437,554	1,385,410	599,764	2,160,211	73,820	218,350
EUR	1,590,573	519,363	177,530	807,131	22,290	64,259
JPY	1,095,562	394,931	151,068	457,929	18,119	73,516
GBP	648,576	211,054	92,005	305,393	10,360	29,765
AUD	348,312	142,932	40,877	137,877	7,052	19,574
CAD	260,408	104,551	34,482	103,060	4,256	14,060
CHF	243,419	57,286	29,833	149,727	1,702	4,870
Chinese yuan - CNY	202,055	67,555	27,984	86,030	2,618	17,868
SEK	112,321	33,710	13,386	59,081	872	5,272
Other currencies	1,195,130	387,906	232,425	490,168	23,213	61,293

Source: BIS Triennial Survey

Another metric used by the World Bank to quantify financial market development at the country level is domestic credit to the private sector. This statistic measures the amount of financial resources provided by domestic financial institutions to the private sector and is correlated to both financial market development and general economic strength (World Bank, 2016). In comparison to other developing countries and in general, China's growth in this area has been very high. However, it still lags behind developed countries, including the European Union, the United Kingdom, and the U.S. (Figure 16).

Figure 16: Domestic credit to the private sector as percentage of GDP



Source: World Bank

<u>Chapter Summary</u>

In this chapter, the reasons for and against increased use of the yuan were discussed. The Chinese economy has transformed dramatically since the economy was "opened up" by a series of reforms in the early 1980s. Once one of the world's poorest economies, China now boasts one of the world's largest economies and sustained economic growth. China's high rankings in GDP and trade and its net creditor position in international trade suggest a greater role for the Chinese yuan, according to an analysis of correlations between macroeconomic factors and reserve currencies. Another argument in favor of greater use of the yuan is that it represents a rejection of the current liberal international order. The decision by a central bank to hold a specific currency in reserves is in some respects a political decision that could represent an endorsement of the currency or a rejection of another nation's currency. The Chinese government raised this issue during the Great Recession in 2009 and 2010 when it felt it had the largest amount of political leverage. Despite the increased regard for the yuan and other alternatives at that time, the yuan faces significant political challenges. After liberalizing capital controls in an effort to gain admittance to the IMF reserve basket, China has recently reverted to increased restrictions on capital flows into and out of the country. The yuan's status is also hindered by the fact that it is not allowed to float freely. Consistent interventions to prop up or devalue the currency's value harm its standing among investors and central banks who do not know if they can trust the Chinese government. The Chinese government gains greater stability in the value of the yuan by intervening, but it also raises undesirable uncertainty for foreign investors. From a financial fundamentals perspective, the yuan needs to make up ground against the U.S. and other major reserve currency countries in the overall use of the yuan and in the depth of its financial markets. In two key metrics, foreign exchange turnover and domestic credit to the private sector, the yuan lags behind. Wider acceptance of the yuan will require more entities to use the currency worldwide in areas other than Asia.

Chapter 5 – The Chinese Yuan's Chances to Overtake the U.S. Dollar: Analysis and Perspectives from Both Sides

Introduction

Earlier chapters in this paper have explored the possibility that the Chinese yuan will overtake the U.S. dollar. In this chapter, this possibility will be analyzed through the use of interviews with an American and a Chinese portfolio manager. Conclusions will be drawn on the chances for the yuan to overtake the dollar in the short and long term future. In addition, a potential timeline for the yuan's rise will be established. Finally, the impact of a potential displacement of the dollar on the U.S. and Chinese economies and their political situations will be analyzed.

Will the Yuan Overtake the Dollar?

The primary reserve currency debate has been defined and explored from the perspective of financial, economic, and political factors. In the opinion of the author, the U.S. dollar will remain the primary reserve currency for at least the next two decades. This opinion was shared by two portfolio managers in the U.S. and China who have carefully considered this topic and were gracious enough to share their opinions. Shayne McGuire is a portfolio manager on the Emerging Markets Equities team and the head of the Gold Fund at the Teacher Retirement System of Texas (TRS), one of the world's largest pension funds with over $130 billion in total assets under management. McGuire has years of experience analyzing investment opportunities in the foreign exchange market and in alternative stores of value such as gold. He expressed his overall view on the idea of a displacement of the dollar by the yuan in this way:

> For the U.S. to lose its primary reserve currency status, it would require the tremendous ascendance of another economy. You would also need the U.S. economy to be weaker,

> meaning people want to hold less dollars. It's difficult to see what would make that change (see Appendix B) (S. McGuire, personal communication, March 2, 2017).

Owen Caterer, the founding partner of Shanghai-based investment management firm Caterer Goodman Partners (CGP), provided a Chinese and international perspective on reserve currencies. Caterer makes the final decision on all investment opportunities for CGP and has written frequently for the company's blog on how Chinese government policy impacts the financial markets in China and around the world.[6] During the interview, he delivered a summary response to the question of the whether the dollar is vulnerable to China's rise: "No, not any time soon" (see Appendix A) (O. Caterer, personal communication, February 16, 2017). The issue of reserve currencies is incredibly complicated, but I share the skepticism of the two practicing portfolio managers that the dollar will be replaced for several core reasons. The first reason was addressed at length in the last chapter, capital controls. At the time that the IMF agreed to begin the process to admit the yuan to its basket of reserve currencies and recognize it as an international reserve currency in 2015, the yuan seemed to have reached a relative peak in terms of its chances for becoming the primary global reserve currency. At that time, the Chinese government had loosened its restrictions on capital flight, increased the yuan's daily trading band, and had taken steps to open up several industries and increase regulatory and legal transparency. These moves suggested the Chinese government was serious about moving towards internationalization of the yuan. However, in the last year, China has been forced to make a decision between its desire to see the role of the yuan increase internationally and its desire to maintain tight control of the yuan's value. Caterer agrees, stating that "the Chinese government continues to have significant capital controls to help manage their currency. This

[6] Caterer Goodman Partners' Blog: http://www.caterergoodman.com/latest-news/

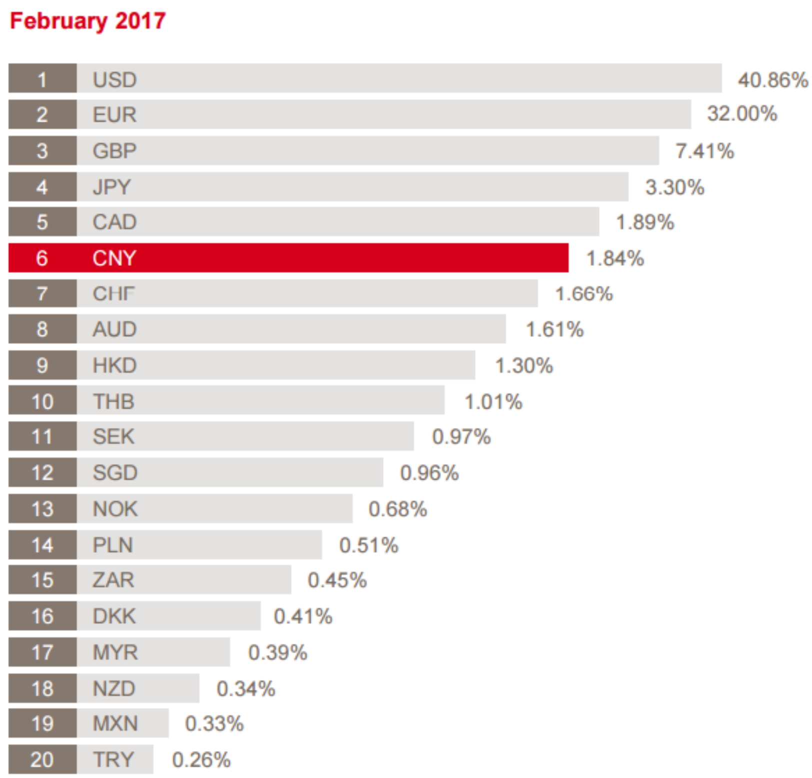
does not engender confidence for foreign investors to hold the currency since they may not be able to get their money back when they wish" (O. Caterer, personal communication, February 16, 2017). By constantly changing its regulations on whether or not capital can flow freely into and out of China, investors are left guessing. Similarly, there are general feelings of mistrust among foreign investors, especially those from democratic Western countries, because of China's communist system of government. China has a reputation for being mostly market-oriented from an economics and financial standpoint, but the government's tight control and opaqueness in many policy areas often spill over into its regulation of the economy (Morrison, 2015). In order to convince investors, central banks, and business leaders to switch over to its currency, China will need to reduce the uncertainty surrounding its government and economy.

Since the implementation of economic reforms began in 1979, the Chinese economy has averaged nearly 10% growth. In comparison, the U.S. has averaged approximately 2.73% GDP growth in the same time period (World Bank). While this difference in growth rates is large, the U.S. remains substantially ahead of China in terms of economic size as determined by metrics such as per capita GDP. In the coming decades, China will almost certainly move ahead of the U.S. in terms of economic output. Even if China moves ahead of the U.S. economically, it is not a guarantee, by any means, that China will have a large enough lead for the yuan to become the primary world reserve currency. In order for the yuan's rise to prominence over the dollar to be assured, it will need the U.S. economy to weaken as it continues to rise because the dollar's incumbency is too strong (S. McGuire, personal communication, March 2, 2017). As an example, consider the dollar's position before World War II. The U.S. economy was starting to quickly gain steam, and the dollar's use was increasing worldwide. Despite the dollar's growing usage, it needed a catalyst to overtake the incumbent primary reserve currency at the time, the

British pound. McGuire explained in his interview that for the dollar’s rise, the catalyst was World War II (S. McGuire, personal communication, March 2, 2017). The U.S. funded war-related liabilities across Europe, which greatly increased the dollar’s usage worldwide. The war also resulted in the kind of economic imbalance that is arguably required to facilitate a transition in the primary reserve currency. As the U.S. economy began to grow quickly, Great Britain and the rest of Europe were burdened by the high costs of war. By the end of World War II, the U.S. had taken over as the world’s reserve currency. China will eventually have a substantial lead over the U.S. in terms of economic output, and if the government commits to enacting the reforms needed to make the yuan accessible, the yuan has the potential to become the primary reserve currency. The amount of time it takes for it to successfully transition to primary status will likely depend on the presence or absence of a catalyst. Without some sort of catalyst, it will arguably take a significant amount of time for the yuan to overtake the dollar. In the case of the British pound, the catalyst was war, and the same thing could happen to the U.S. economy. If the U.S. was devastated in a large scale war that greatly reduced its economic growth and future prospects while China continued to grow at a rapid pace, then a similar transition in reserve currency status could occur. Another possibility is that the U.S. becomes burdened by a structural problem, such as demographics (low population growth and little immigration) or unfunded liabilities like Social Security, Medicare, or Medicaid. McGuire spoke at length on this issue, noting that it was hard to foresee a change from the dollar without some sort of change of the status quo: “It’s not like World War II where some countries were ascendant and untouched, while others were completely annihilated. It’s hard to see a situation as drastic as the one we saw between the dollar and pound” (S. McGuire, personal communication, March 2, 2017).

While the Chinese economy's growth makes the discussion possible, the Chinese yuan is still lacking in several fundamental metrics that support primary reserve currencies. First, a primary world reserve currency should be widely utilized in international trade. From December 2015 to February 2017, the yuan's share as an international payments currency decreased from 2.31% to 1.84%, and its ranking fell from fifth to sixth among all currencies ("RMB Tracker," 2017) (Figure 17). The geographic spread of international payments utilizing the yuan is also not supportive for a greater international role at this time. Approximately 76% of the international payments involving the yuan originate in Hong Kong, which is the highest share in three years ("RMB Tracker," 2017). Rather than demonstrating an increasing international reach, the yuan's reach remains largely confined to Hong Kong and countries in the Asia-Pacific region. The yuan also remains in a distant eighth place among currencies in terms of average daily turnover, while the dollar remains in first by a significant margin over the euro and yen (BIS, 2017). Another important differentiating factor for a potential primary reserve currency, which was discussed at length in the last chapter, is the relative size and depth of the home country's financial markets. From a quantitative perspective, the U.S. has a strong domestic credit to the private sector percentage and compares favorably to the rest of the world, while the yuan trails behind. However, simply looking at the domestic credit to the private sector metric does not accurately reflect the strength of the U.S. incumbent position in the financial markets. Despite the presence of economic turmoil during the Great Recession that had not been seen in the U.S. since the Great Depression in the early part of th 20th century, the U.S. dollar remained a safe haven for investors around the world seeking a trusted place to put their money. In addition, foreign access to the U.S. Treasury market and financial markets in general remained strong with minimal interruptions at the start of the recession (Moghadam, 2009). Once again, the importance of economic transparency comes into focus. For the yuan to improve in these areas, investors have to develop greater confidence in China's financial markets and in its regulatory system.

Figure 17 – Currency share of international payments in February 2017



Source: SWIFT

How China Would be Impacted by a Reserve Currency Yuan

While it does not appear that the dollar will be displaced as the primary reserve currency in the near future due to foreign exchange fundamentals and political factors, it is important to consider how a shift in reserve currency status would impact both China and the U.S. A hypothetical change in primary reserve currency status would have substantial political and economic ramifications. For China specifically, the issue remains one of strategic importance as well as an opportunity to improve the country's prestige and soft power in the international geopolitical sphere, although recent actions by the Chinese government do not suggest it is their top priority. An important thing to note is that the government and culture in general are forward-looking, and actions taken now are potentially designed to set up an opportunity to capitalize on later. Owen Caterer explains:

> A reserve currency yuan is seen as important for prestige and the ability to project power beyond its borders. It is however not seen a core goal. The core and first goal is remaining in power by any means necessary and remaining in control of the main levers of economic management is a key part of this goal (O. Caterer, personal communication, February 16, 2017).

Part of the government's hesitance can be explained by the potentially negative effects of going all-in on a push for the yuan to become the primary reserve currency. One problem is that the yuan would have to float freely against all other currencies, and frequent currency intervention and manipulation would be discouraged by the international community. The Chinese government has been willing to reform its economy only to the extent that it will satisfy as many people as possible, thereby ensuring greater political control (Morrison, 2015). However, if the yuan became the primary global reserve currency, it would provide significant political capital for the government, who could herald the far-reaching nature of Chinese culture worldwide.

Despite the political benefits for the government, the negative economic effects could potentially result in a popular backlash by the Chinese people against the government. One important impact of reserve currency status would be higher demand for the yuan, resulting in consistently higher than expected exchange rates of 5-10% (Dobbs, et al. 2009). A stronger yuan would have a negative effect on China's export position as higher costs make their exporters less competitive. The Chinese government has sought to diversify its economy in recent years to include more services and has successfully lowered its reliance on exports as a percentage of

GDP by 15% in the last ten years (World Bank, 2017). Despite their best efforts, however, exports as a percentage of GDP remains high compared to other large economies at 22%. In comparison, the U.S. only exports 12% as a percentage of its total GDP. Given the negative political ramifications of lost manufacturing jobs, the Chinese government will need to continue to prioritize diversification of the Chinese economy in order to reduce export-related negative effects from the yuan becoming a primary reserve currency.

In general, the promotion of the Chinese yuan to be a dominant reserve currency would lead to similar benefits that the U.S. receives with a few potential exceptions. It is difficult to make any strong conclusions in this particular area because the manner in which the yuan becomes the primary reserve currency would impact the extent of the benefits and costs it would receive. The U.S. economy currently receives a significant benefit from lower borrowing costs due to lower interest rates. The Chinese economy would likely receive the same benefit, but it could be minimal if there are still capital controls in place (O. Caterer, personal communication, February 16, 2017). With capital controls in place, the Chinese government would fund its obligations with debt purchased by Chinese and Hong Kong investors. These local investors are known as “captive investors” because their capital is limited to investment in Chinese government bonds. While this makes sense in theory, it is difficult to imagine the current capital controls remaining in place with the internationalization of the yuan. If capital flow restrictions were removed as a precursor to the yuan’s rise to prominence, the benefits would likely be similar to those enjoyed by the U.S. less a larger negative impact on exports.

Dollar’s Displacement – Impact on U.S.

As discussed in Chapter 3, the U.S. currently receives an estimated benefit between 0.5% and 1.5% of its GDP in a non-recession year (Dobbs, et al. 2009; Eichengreen, 2010). Because of the variation in how exactly the yuan could displace the dollar, it is difficult to measure how much economic output the U.S. would lose. Barry Eichengreen suggests the possibility for a dramatic shift in investor sentiment causing a massive drop in the dollar's value, perhaps by as much as fifty or sixty percent. The economic ramifications surrounding the dollar's collapse could reduce economic output by as much as 2% per year (Eichengreen, 2010). A rapid shift in the dollar's value would leave investors scrambling for other currencies to hold. The euro and the pound would benefit in such a situation, and the yuan would likely gain a large share of the market and position itself for even more. Eichengreen himself admits in his book that this scenario would be a worst case for the U.S. In short, it is difficult to envision a scenario as dramatic as the one portrayed in his book. One reason against this situation is that transitions in primary reserve currency normally take years to occur. McGuire expressed support for a potentially gradual change when questioned on the potential timeline for a change in reserve currencies:

> "The notion of the yuan replacing the dollar as a reserve currency, I think that would be a very gradual change. It would be the impact of China's internationalization, and that central banks realize that there is a practical reason for holding yuan. I think that could come in time, but for the time being, it's still not there" (S. McGuire, personal communication, March 2, 2017).

The potential for a rapid change in primary reserve currency is not impossible, but it seems unlikely given the current situation involving the dollar and the yuan. The dollar was in great position to overtake the pound before World War II, but the transition still took years to occur. Furthermore, the idea of a gradual change also reflects the theory that markets are efficient, and investors incorporate all public information when making investment decisions. Unless investors were presented with information that suggested a drastic change in U.S. economic or political status is possible, it is hard to envision the U.S. losing as much as 2% of its GDP per year due to the loss of the dollar (Connor, 2013).

The biggest danger for a rapid collapse of the dollar may originate in consistent deficit spending, leading to higher accumulated federal debt levels. In the 1960s, economist Robert Triffin proposed that the U.S. government, as the supplier of the primary global reserve currency, needed to print enough dollars to ensure the excess demand for dollar reserves abroad was fulfilled so that economic growth worldwide could continue unhindered. In order to satisfy this requirement, the U.S. would have to increase its deficits in both government spending and in its trade current account (more imports than exports) (Eichengreen, 2010). At the time, high deficit spending and a negative trade position were seen as incompatible with the dollar as the hegemonic currency in the Bretton Woods system, but the presence of a government supplying the world with sufficient currency supply was also assumed to be necessary. This inherent tension between the national and global monetary policy interests of the primary global reserve currency country was termed Triffin's dilemma. The situation today differs in that there are alternatives to the dollar in the form of the euro, yen, and the yuan, among other prospective currencies. Despite the alternatives, the dollar provides the liquidity needed for emerging market economies to grow quickly (Eichengreen, 2010). A sudden change from the dollar to a different currency would possibly result in a scramble to buy reserves of other currencies.

The question then is how the more likely scenario for a change in primary reserve currency, a gradual shift to the yuan, would affect the U.S. From a macroeconomic perspective, the displacement of the dollar would result in higher interest rates and inflation. An increase in interest rates can be explained by the fact that investors would require a higher yield to hold dollar securities. Currently, the high demand for securities such as U.S. Treasury bonds keeps interest rates in the U.S. at low levels and provides the U.S. government an opportunity to borrow at lower costs than the rest of the world. In conjunction with the benefits of seigniorage and the domestic political benefits of funding entitlement programs, the U.S. government has ample incentive to run a deficit. Even if the dollar’s role is only reduced, this benefit would go away because it depends on the strength of the dollar and the enticement of foreign funds. The government would be forced to control public expenditures and potentially cut back on entitlements in a kind of austerity program. Without spending cuts, the risk would be further depreciation of the dollar as it begins to more accurately reflect its underlying fundamental value.

The dollar would also potentially lose its safe haven currency status. This change is not certain by any means and would require a loss of faith in the U.S. dollar. The Japanese economy, for example, has been largely stagnant for the past twenty years. However, its currency remains a safe haven in Asia for investors concerned about the depreciation of their local currency. It seems more likely that a shift in reserve currency would be caused, at least partially, by a loss of faith in U.S. institutions. In this case, the dollar would not retain its safe haven status. During an economic downturn, the impact of this change would be fairly large and potentially positive. From 2008-2010, the dollar’s value against other currencies was largely stable and even rose against some currencies. The strength of the dollar made it much harder for the U.S. to export during a time of economic crisis, a significant drawback of being a reserve currency. The dollar’s value would also be lower in general during normal economic periods, further improving opportunities for exporting. In addition, the transition away from the dollar would allow policymakers to focus more on the domestic economy instead of the global economy. Any benefits from a change to a more domestic focus would depend on the party and leadership dynamic in the federal government at the time (Goldberg, 2011).

The loss of the dollar's dominant status would also affect businesses and consumers. Companies that previously conducted their business in dollars would be forced to change to the yuan, which would initially increase transaction costs. Additionally, American consumers accustomed to buying goods with cash around the world would be forced to adjust to the fact that the dollar would no longer be accepted as often in foreign countries. While both of these issues may turn out to only be small nuisances in the long term, they would be a daily reminder of a yuan-dominated world. A shift to the yuan would also be an endorsement of the Chinese view of international relations. Currently, the Chinese government is seeking to maintain peace and stability in the world, partly because it realizes the costs of war and does not want to interrupt its economic progress (Nye, 2012). The government therefore gives off the impression that it opposes aggression, which may be seen as more attractive than the liberal international philosophy commonly held by governments in the West.

Chapter Summary

In this chapter, the potential for the Chinese yuan to overtake the U.S. dollar as the primary reserve currency was examined through the author's analysis and the lens of two interviews with portfolio managers in the United States and China. Because of the flawed financial and political fundamentals underlying the yuan, it is not expected to become the primary reserve currency in the next two decades. Furthermore, the dollar possesses a significant advantage in many financial metrics and in intangibles like trustworthiness by investors and central banks. In terms of impact, the Chinese government would receive a considerable boost to its international prestige and reap the economic benefits of lower borrowing costs and seigniorage revenue. However, some of these benefits could be partially canceled out by the reduction in exports that comes with being a strong currency. In comparison, the U.S. would be negatively impact by higher borrowing costs, lower seigniorage revenue, and less mandate for government spending. Without primary reserve currency status, the dollar would potentially lose its safe haven status, which would be beneficial during times of economic crisis. As capital flows out of the U.S., export competitiveness would increase.

Conclusion

In the introduction, we met John, a fictional portfolio manager seeking to understand the effects of the displacement of the U.S. dollar by the Chinese yuan. The case study was written with the goal of depicting the worst case scenario proposed by some editorial writers in the financial media today. While the scenario involving John is unlikely, it would not be impossible for a structural problem to reduce the dollar's role, while at the same time an ascendant Chinese economy ushers in the Chinese yuan as the primary global reserve currency. This particular possibility would be costly for the U.S. both economically and politically. The confusion among government officials, portfolio managers, and average people would be pervasive. However, the goal of this thesis was to examine the reality of the reserve currency debate, not just the worst case scenario. After examining history and the economic, financial, and political factors affecting both the U.S. and China, it does not seem likely that the Chinese yuan will replace the U.S. dollar within the next two decades. If anything is certain though, it is that China has evolved at a remarkable rate in the last four decades and will continue to do so. While the government will likely continue to waver between seeking an international role for the yuan and a more contained role in the short term, the long term presents a lot more uncertainty. China's economy continues to grow at a faster pace than the U.S. economy despite the fact that it is has started to see its growth rate slow down. Even at a slower pace of growth overall, the Chinese economy will eclipse the American economy in our lifetimes and grow the margin between them. The ability of the Chinese yuan to become the world's dominant reserve currency will be decided first by the Chinese government. The government seems to be biding its time in regards to the yuan. Currently, it is working on building goodwill worldwide and striving to diversify its economy. Domestically, infrastructure and cities will continue to be built. However, despite the amount of progress being made in many areas of the economy, China continues to lag behind its American "competitor" in many areas important for its candidacy as an international reserve currency. Until the yuan begins to improve in crucial areas that the dollar currently leads, the yuan will not be the primary reserve currency. The areas where the dollar currently dominates include financial market depth and transparency, usage in transactions worldwide, greater access to markets, reduced capital controls, and restrictions on capital inflows and outflows. Furthermore, the yuan must be allowed to float freely against all other currencies, so that investors and governments can have full faith that the currency is trading at an accurate value without interference. The Chinese government will have to make a significant political sacrifice if it desires to push the yuan internationally at the level needed for it to reach eventual primary reserve currency status. Allowing the yuan to float freely and lowering capital controls will increase the currency's volatility in the short term as China continues to further develop its economy. A stronger yuan would also put China's large number of exporters at risk of being outcompeted by rivals in Asia and elsewhere in the world. Even with a concerted political effort by the Chinese government and strong economic growth, the yuan will likely need a catalyst for it to emerge suddenly in the next twenty years. Potential catalysts could be structural problems in the U.S., such as war, demographics, or insolvency due to unfunded liabilities. In the face of both domestic economic and political problems, the U.S. could be forced to retreat from its prominent international position. A struggling U.S. combined with an ascendant China could provide the boost needed to knock the dollar off its perch and replace it with the yuan. As it stands in 2017, however, the status quo will have to change significantly to displace the dollar because of its large incumbency advantage. The use of the dollar is self-reinforcing: because of the large number of institutional investors and central banks invested in the dollar, the markets for the dollar are highly liquid and deep. High liquidity and financial markets depth further increase the demand for the dollar and dollar securities, and the cycle continues. To put it simply, the Chinese yuan will have the prominent international role when the dollar is not an obvious choice for investors and central banks alike.

There are several potential areas of extension from this topic moving forward. One potential continued area of discussion is multipolarity, the idea that multiple currencies could share the dominant primary reserve currency role equally. A potential benefit of multipolarity is its greater political neutrality. Rather than having the dominance of a single currency, there are instead two or three currencies sharing the burden. This kind of system would reduce the sovereign risk related to a single, hegemonic reserve currency system and prevent the countries involved from being loose with government spending. Furthermore, foreign exchange movements would theoretically be more inclined towards actual fundamentals rather than reflecting the volatile flight of capital for safety or yield (Smaghi, 2011). Another potential idea is to explore alternative reserve currencies, such as one based on the special drawing right (SDR) or on a completely new currency, such as bitcoin. These two possibilities would also entail greater political neutrality but would have significant financial and economic deficiencies. Bitcoin, in particular, would be a questionable reserve currency because of its low liquidity and high volatility. More research will be needed to determine the efficacy of these alternatives.

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Appendix A: Interview with Owen Caterer

Date: February 16, 2017
Interviewee: Owen Caterer, Founding Partner – Caterer Goodman Partners, Shanghai, China
Conducted by: Michael Laitkep

How do you view the debate on reserve currencies in light of China's economic rise – is the U.S. dollar vulnerable to being overtaken by the Chinese yuan as the primary global reserve currency? Why/why not?

No, not any time soon.

Firstly, the Chinese government continues to have significant capital controls to help manage their currency. This does not engender confidence for foreign investors to hold the currency since they may not be able to get their money back when they wish.

Secondly, the Chinese government frequently conducts policy changes and manipulates the economy and rules to its own advantage frequently. As a result foreign portfolio investors such as pension funds don't trust the Chinese government and therefore do not invest.

Thirdly, there are still far too many restrictions and rules around holdings of Chinese government debt, which has prevented the bond market from reaching a significant size or depth of trading. A large and liquid bond market is necessary for Reserve status to be considered. The opacity of government finances and what would happen in the event of a default also temper foreign appetite for Chinese government debt. The lack of independence of the judiciary is a key impediment in this regard.

What kind of timeline do you see for a potential change in primary reserve currency? Are there any events or situations that would catalyze a change?

I do not see the Chinese government allowing their currency to float freely in my lifetime. The ability to manipulate the currency supported by currency controls, is a policy lever that power jealous Chinese officials would be loath to give up.

Only a complete change in the Chinese government's perspective towards economic policy would allow them to float the currency freely. This would require at the very least, a complete victory of liberals within the Communist party which is unlikely given the large number of powerful vested interests littered throughout the Communist government leadership at all levels. More likely regime change (which would be very violent and politically messy) would be required for a change in this policy, but such a crisis would probably push back any consideration of reserve currency status by a decade or two. A financial crisis would not convince the government to float the currency because their natural instinct in times of trouble, is to command more control of the economy, pump stimulus through the government owned financial system and government owned companies to invest. Less control is a very unlikely policy response in my opinion.

What impact would a complete displacement of the dollar's reserve currency role have on the U.S economy and/or government? Is the impact on the U.S. reduced if the dollar's predominant role is merely reduced rather than displaced?

The loss of the dollar's reserve currency role would have a significant impact on the American economy. It would raise interest rates for both government and industry. A reduction is possible but no other currency is even close to demanding even a secondary role that say the Euro, in different circumstances would demand. The incomparable size and depth of the US government debt market is a considerable attraction to large sovereign and pension fund managers. This creates strong network effects similar to a social network. All large investors want to be in the deepest investment market in the world so that their investment moves don't alter price

If somehow the US government were to lose its reserve currency role, then its ability to fund itself would be hampered and higher interest rates would need to be paid. Further, their ability to use the financial and banking payments system to its own advantage for sanctions (e.g. Iran/Russia) or to bring through compliance measures (e.g. FATCA) would be severely limited and impeded.

How would an increase in the Chinese yuan's standing as a global reserve currency affect China?

It would force them to become far more open around finances and policy movements and allow far greater free access to their economy by foreigners. All of these would be a significant change from current policy trends. It wouldn't change the interest rate they pay due to the fact that capital controls provide them with a large captive investor base.

How does the Chinese government view this situation? Is a push for greater prominence for the yuan an initiative they consider important?

A reserve currency yuan is seen as important for prestige and the ability to project power beyond its borders. It is however not seen a core goal. The core and first goal is remaining in power by any means necessary and remaining in control of the main levers of economic management is a key part of this goal.

How does this issue specifically affect Caterer Goodman Partners? Do you and the portfolio managers at CGP see this issue as potentially disruptive for investors?

It doesn't have a large specific impact to us because we tend to avoid Chinese denominated assets for our clients. A move to a Chinese reserve currency would be disruptive but given the openness it would require, would also open up considerable opportunities in the Chinese market also.

Appendix B: Interview with Shayne McGuire

Date: Friday, March 2, 2017
Interviewee: Shayne McGuire - Portfolio Manager, Emerging Markets Equities and Gold Fund at Teacher Retirement System of Texas (TRS)
Conducted by: Michael Laitkep, student at UT Austin

How do you view the debate on reserve currencies in light of China's economic rise – is the U.S. dollar vulnerable to being overtaken by the Chinese yuan as the primary global reserve currency? Why/why not?

Countries are going to accumulate reserve assets in the vehicle that most effectively allows them to manage their currency. The most liquid, widely-used currency is the dollar, so that is the currency that they use. If, increasingly, things start being denominated in yuan, that will start to change. But I think that the notion that the yuan could displace the dollar ignores the fact that most people use dollars to determine prices of different global goods simply because it is the most practical. Goods would be traded in yuan if more and more people started using the yuan, but given the practicality of continuing to use the dollar, there really has not been any change in that relationship. I think it is just the practicality that makes the world use the dollar as their currency. Central banks hold super-liquid foreign assets (dollars) because they are the easiest to sell. If you need to dump $10 billion on the market, it is very easy to do for a central bank. If a central bank thinks China is ascendant, it might begin holding 30% in yuan. During a crisis, if the central bank is going to sell $10 billion in yuan, maybe the market is not that liquid. That is the reason for holding dollars; they are incredibly liquid. Central banks will use the dollar simply because it is the easiest currency to use for transactions.

Two-thirds of the dollars in circulation circulate outside of the U.S. It really is the world's money. And China does not have open financial markets. Recently, they have imposed severe restrictions on people buying assets outside of the country. That is because they are concerned about their currency falling. Everyone is talking about the yuan taking off and replacing the dollar, but the pressure right now is for the yuan to fall.

Quite often, the notion of the dollar losing its reserve currency status is related to the U.S. debt. People quite often talk about our debt, which is out of control. But [debt] is out of control in Japan, in China, in Italy. Well, let us just say it is very high, relative to history, in a number of other countries. Everybody has issues, which is why I keep pointing to World War II because everyone was devastated after the war.

What kind of timeline do you see for a potential change in primary reserve currency? Are there any events or situations that would catalyze a change?

The notion of the yuan replacing the dollar as a reserve currency, I think that would be a very gradual change. It would be the impact of China's internationalization, and that central banks realize that there is a practical reason for holding yuan. I think that could come in time, but for the time being, it is still not there. In fact, there is a long way to go for that to happen; we are not even near that.

For the U.S. to lose its primary reserve currency status, it would require the tremendous ascendance of another economy. You would also need the U.S. economy to be weaker, meaning people want to hold less dollars. It is difficult to see what would make that change. China is the second largest economy and still quite a bit behind the U.S., but it is possible if they just became tremendously important. They would need to open up their financial markets, which aren't completely open. So if they opened those markets, more and more transactions would become yuan-denominated, and people would see the need to hold yuan. You would start to see central banks begin to hold a percentage of yuan in reserves, but you would also need to see the decline of the United States.

A potential catalyst is war. If the U.S. was mired with a tremendous burden, but China stayed out of the war and had significantly fewer problems and is allowed to grow, that could catalyze a displacement of the dollar. Consider the change from the dollar to the pound at the end of World War II. Other potential catalysts are structural problems, such as demographics. The U.S. also has very high unfunded liabilities, such as Social Security, Medicare, and Medicaid, eating up the government's budget. But once again, China has massive debt and other issues. To keep the unemployment rate unchanged in China, they have to add 1.2 million jobs a month. Each country has their problems. It is not like World War II where some countries were ascendant and untouched, while others were completely devastated. It is hard to see a situation as drastic as the one we saw between the dollar and pound.

What impact would a complete displacement of the dollar's reserve currency role have on the U.S economy and/or government? Is the impact on the U.S. reduced if the dollar's predominant role is merely reduced rather than displaced?

In a situation where the dollar is gradually being displaced, inflation would start to rise in the U.S. as dollars are being dumped in favor of the yuan or another currency. It would push up our interest rates. Frankly, it is very difficult to see that happening because of the way the world is structured at this time. You would need the U.S. economy to weaken in addition to the yuan strengthening. If we consider the Japanese yen, the economy of Japan has been stagnant for 20 plus years, yet the yen has not weakened that much over the years. In fact, it has strengthened and continued to rise. The reason is because of its current account surplus.

By having a reserve currency, the U.S. has been able to borrow at very cheap rates because everyone is buying our bonds, and that is depressing our interest rates. That is the exorbitant privilege – we can borrow cheaply.

How does this issue specifically affect TRS? Do you and the portfolio managers at TRS see this issue as potentially disruptive for investors? What effects would it have on pension holders?

Assuming a gradual change, TRS would gradually adapt and diversify properly. Likewise, the market in general would largely adapt ahead of time in anticipation of the change.

Biography

Michael Laitkep was born and raised in Houston, Texas. He will graduate from The University of Texas at Austin in May 2017 with degrees in Plan II Honors and Finance. His involvement on campus includes membership in International Justice Mission Longhorn Chapter and the University Securities Investment Team. He is currently the Financial Director and a Contributing Editor for the Texas Undergraduate Law Review. After graduating from The University of Texas, Michael will work in investment operations for Capital Group.